

APPLIED DIETETICS

The Planning and Teaching of Normal
and Therapeutic Diets

By

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TO

ELEANOR SALTONSTALL

*Whose faith in the Food Clinic throughout the years has helped
beyond measure towards the fulfillment of this book*

PREFACE TO THE FIRST EDITION

In 1918 a special clinic was organized as a part of the Medical Clinic of The Boston Dispensary, to undertake the dietetic treatment of the ambulatory patient. This was the Food Clinic of The Boston Dispensary, the first of its kind functioning with a dietitian to guide and help the outpatient in fulfilling the food prescription given by the physician.

A satisfactory technique had to be developed for this new type of service. Principles of organization and methods of procedure had to be formulated, and relationships with other departments established. Food treatment for the outpatient had to be planned not only with respect to physical requirements as stated in the medical record but also with careful consideration of mental capacity and attitudes, and of the influence of the environment—the home, the school and the occupation. Means had to be devised for securing and recording data. Moreover, for intelligent participation in making the dietary effective the patient had to be given an understanding of the underlying principles, and this entailed the development of educational methods and materials.

In the interests of this many-sided service, various forms, materials and data were gradually assembled and organized for the use of both dietitian and patient. The growth of the clinic and the increasingly intensive work with the patient gradually effected a closer interdependence of the physician, social worker, nurse, dietitian and health educator, in a unified plan of treatment.

Staff workers came to the Food Clinic for materials and advice. Students came also, and gradually various schools and

hospitals, in this country and abroad, were sending students, singly, in groups and in classes, from the fields of medicine, dentistry, home economics, applied dietetics, social service, nursing and public health, for periods of study, observation and practice. The interest shown gave further impetus to the development of the material that the dietitian had been using for her own and her patients' needs and to its formulation in terms of the interests of various types of students.

A group of dietitians from local medical institutions gathered in the Food Clinic several years ago, to discuss methods and materials for use in teaching applied dietetics. The first drafts of some of the tables included in this book were revised by this group: Mrs. Quindara Oliver Dodge, Mrs. Beula Becker Marble, Miss Manza Moore, Mrs. Octavia Hall Smilhe and Mrs. Thelma Tubbs Currier. The belief and encouragement of this group was an added stimulus to accomplishment. Since that time the Food Clinic has expanded the tables, added new ones and confirmed their practicability through use with patients and students.

Thus the book can be pictured as having been in the process of development for many years.

In 1920, the South End Diet Kitchen, founded in 1875 to provide "food for the sick poor," decided that it could best fulfill its purpose by contributing to the support of the Food Clinic, and to that end it eventually transferred its funds to The Boston Dispensary. The directors, under the leadership of their president, Mrs. Richard M. Saltonstall, have always encouraged every development of theory, method and practice in the Food Clinic.

There have been so many friends and helpers, both within and without the Food Clinic, that it would be impossible to mention all by name, and this opportunity is taken to express to them again, as if each were named, the thanks that have been given them by the spoken word. Grateful recognition is given to past associates in the Food Clinic, for their various contributions to Miss Bertha Wood, who in the early years stated effectively in her book, "Food for the Foreign Born," principles that the Food Clinic, from its inception, has held to be fundamental, to Miss Gertrude T Spitz, whose devoted service to the Food Clinic movement has strengthened faith in it, helped to develop its philosophy and won for it many adherents, to Mrs Rachel Meserv e Hoyt, who demonstrated the possibility of the education of the patient, to Mrs Jean Reyner Costigan, who collaborated in formulating the first drafts of the Dietary Outlines and Tables of Food Values and Measures, to Miss Charlotte Raymond, whose great interest in the field of applied dietetics has added much to the dissemination of knowledge of the customs and food habits of the foreign born, and to Miss Mabel Stimpson who, through a study of a group of children in the Children's Medical Clinic, demonstrated the importance of a careful consideration of food habits and environmental influences in medical treatment.

To present associates in the Food Clinic, special appreciation is gratefully expressed to Miss Elizabeth Barden for admirable service rendered to patients, students and co workers, in testing and strengthening through years of practical application the theories and data that constitute this book, to Miss Helen Finkelstein, who correlated closely the dietetic treatment of the patient as given

in the Food Clinic, in the Diagnostic Ward and in the pre-school Dental Clinic, in the interests of both student and patient, and to Miss Catharine Hazen, who demonstrated the value of educational methods with food allergy patients. Grateful acknowledgement is given to Miss Mary Pfaffmann, the health educator of the staff, who developed methods and compiled materials for teaching children and mothers the relation of food to body needs, and who has rendered invaluable service in connection with the preparation and editing of this book, and to Miss Florence Goldman for her great care, intelligence and patience in typewriting the manuscript.

Throughout the years, Dr Stuart B Foster, of the Department of Chemistry, State Teachers' College in Framingham, Massachusetts, has reviewed and verified the data contained in the Tables, and with his guidance the Foreword to the Tables was written. His cooperation is deeply appreciated, and also that of Dr Hazel E Munsell, U S Department of Agriculture, Bureau of Home Economics, who kindly reviewed the data given in the vitamin chart.

The section concerning the mental and emotional factors that influence the diet has been reviewed by Dr Augusta F Bronner, of the Judge Baker Child Guidance Center. In demonstrating the interaction of the mental life and food habits, the Food Clinic has been encouraged by Dr Bronner's recognition of the importance of this relationship.

The assistance of various physicians has been most valuable in formulating the medical data included in the text and the Dietary Outlines. Co workers in the Department of Social Service of The Boston Dispensary have appreciated, from the pioneering days of the experi-

ment, that the work of the Food Clinic is vitally related to their own service, and their understanding of social factors in relation to food has contributed much to the philosophy herein outlined

The book is the result of labor that is felt to be closely integrated with the aims and service of The Boston Dispensary as a whole. Deep appreciation is expressed to the Director, Mr. Frank E. Wing, and also to Mr. Michael M. Davis, Director

when the Food Clinic venture was begun, to the Administrative Staff and co-workers in every department, for their constant encouragement and faith.

Miss Dorothy B. Hacker, valued associate in the Food Clinic for several years, gave, devotedly, time and labor to the first drafts of the material of this book, which counted as a long step toward the final accomplishment.

1936

F S

PREFACE TO THE SECOND EDITION

Since the publication of the first edition of Applied Dietetics there has been accelerated research in nutrition and growing interest in applied dietetics with *an increase of the number of nutrition courses*. For students, public health workers, teachers, nurses, social workers and physicians the author believes the new edition of Applied Dietetics will be of continued value.

Perhaps outstanding in the newer knowledge of nutrition are the findings concerning the vitamins. At the time of the first edition the vitamin values of foods were based primarily on biological experimentation inasmuch as the vitamins had not been isolated and their chemical composition was unknown. To day the chemical structures of most of the vitamins are known and many foods have been analyzed for their content of these different chemical compounds. Therefore the quantitative estimate that had previously been indicated by the plus sign is expressed in figures in the various tables and diets of the new edition. With the exception of vitamin A and vitamin D the names of the vitamins are used as determined by their chemical composition. While the book primarily gives consideration to food values, it indicates when medication will be necessary in certain diets where it is impossible to meet vitamin requirements. Various foods are now enriched with vitamins and minerals and the figures for the food values of many of these are included.

There is marked evidence of a desire on the part of both professional and lay people for greater knowledge concerning the vitamins, what they are, the amounts required, their effect on the body, where

they can be obtained in food, and the amounts which the various foods supply. Ways and means of teaching this information are contained in the chapters on *the education of the patient on the normal and therapeutic diets* and in the Dietary Outlines. In this edition Dietary Outlines are given for conditions of vitamin deficiencies. Lists of foods equivalent in vitamin values are included, and methods for conservation of vitamins.

Research has contributed new scientific data with respect to the mineral values of foods, and there are new standards for the normal dietary. This has involved some changes in the tables in the new edition. The figures for the food values remain much the same but the diets have been re evaluated in terms of the latest requirements. A table for potassium has been added in terms of average servings of some common foods arranged according to their potassium content.

For students in medicine and allied fields there has also been much consideration of therapeutic diets, not the least among them the diabetic diet. A new *chart on diets in diabetes shows the use of the food constituents in relation to those of the normal diet, and variations in the diabetic diet according to the patient's weight*.

In the chapter on the education of the patient on the normal diet there are new illustrations. These include an example of an especially helpful set of charts that record how each food constituent serves the body, the amounts needed per day at various ages according to the latest figures, and food sources by means of pictures of servings of foods with the

amount of the food constituent each serving contains

As in the previous edition there are many references to nationalities in the chapter on environmental factors, and a chart of food practices of some foreign peoples is included in the Tables. This subject has become of increased importance through the studies made by the Committee on Food Habits of the National Research Council

The summaries in table form at the end of the book now have introductory remarks to give detailed information for their use in analysing and synthesizing the data given in the diets. There are also added findings in the table of physiological data. In the table of weights and measures more figures of the metric system are stated

It is believed that these changes will make the book more effective

I wish to thank the publishers for their continued faith in this method of teaching applied dietetics. Also the many teachers and students in various fields

for demonstrating in their work the value of the method described in this book. Many suggestions have come from my associates still at the Boston Dispensary who contributed to the first edition. Dr Joseph Rosenthal has been of special help on account of the close integration of the Food Clinic and the Diabetic Clinic of which he is chief. The many physicians who send patients to the Food Clinic have given approval of the statements in their special fields particularly Dr Kathryn S. Andrews, Dr Robert S. Buck, Dr William Dameshek, Dr Samuel H. Proger and Dr Siegfried J. Thannhauser. Dr Benjamin Alexander of the Harvard Medical School has read with meticulous care the part of the manuscript relating to the vitamins. The new computations were assembled by Mrs Marie M. Alexander and Mrs Mary L. Craig. Mrs Craig has worked constantly with the writer, and the second edition would not have been fulfilled without her devotion and help.

1943

F S

INTRODUCTION

THE USE OF THE BOOK

The aim of this book is to present a procedure for planning and teaching normal and therapeutic diets. The methods herein described are based on certain principles of nutrition that serve as guides in the construction and the use of diets for the needs of the individual patient, making it unnecessary to memorize formulas. A fundamental principle is that food is composed of the same constituents as the body, and when taken into the body and broken down by physiological processes supplies the substances with which to build and repair tissue, provide energy and regulate the functioning of the different body parts. The therapeutic diet is to be conceived of as a deviation from the normal diet. With the realization of these principles, the normal diet is considered in relation to normal physiology, whereas the therapeutic diet, considered in terms of pathological physiology, may call for an increase or decrease in the amount of a food constituent or the omission or change in consistency of a food or foods as used in the normal diet.

Throughout the book the body requirements, in terms of the food constituents, are based on consideration of height, weight, age, sex and activity. The diets are based on the requirements of a man weighing 70 kilograms, although diets for the child and for pregnancy are also included. Since the same individual, in terms of normal weight and activity, is considered throughout the book, it is possible to demonstrate clearly the relationship between the diets.

Part I develops each step in the construction of normal and therapeutic diets

in relation to body needs, and provides criteria for the selection of food constituents in right amounts, and the amounts and kinds of foods necessary to supply them.

The effect of the relation of personality to food is emphasized in the chapter on *Environmental factors that influence the effectiveness of the diet*.

Chapters on the education of the patient include material and methods helpful in teaching not only the principles of normal nutrition but also their application to the therapeutic diet. These chapters discuss such matters as *Gaining the confidence and cooperation of the patient*, and *Conference with the patient*. The chapter on the education of the patient on the therapeutic diet discusses further *The modification of the normal diet*, *Procedure in teaching the patient*, the *Application of the procedure to specific diseases*.

Part II is a series of tables which may be used with or without the text to simplify the computation of the diet. They will serve for reference and interpretation, much as do the tables on which the engineer relies. For convenient reference they are listed in the table of contents by number and page.

Part III comprises a series of Dietary Outlines, that are both complete and concise, for the dietary treatment of various diseases or abnormal conditions. Each Dietary Outline considers the following factors: *Body part affected*, *Physiology*, *Pathological physiology or abnormal condition*, *Dietetic treatment*, *Other contributing factors in dietetic treatment*, *Food for the day*, *Reason for the selection of the*

foods used in the special diet, Meals, Environmental factors that influence the effectiveness of the diet, Education of the patient, Abnormal conditions and diseases that may be found in association with the particular disease described

All these data are brought together at the beginning of Part III, in tabular form, to show the normal requirements of the food constituents, and their variation for the therapeutic diet. Reading across the columns of this chart, one sees the amounts of the various food constituents needed per day for each disease or abnormal condition. Reading down the columns the chart shows that only in certain diseases or conditions does the requirement of a food constituent deviate from the normal.

In Part IV the normal and therapeutic diets are computed, to illustrate how the food prescription may be fulfilled, and the figures are starred when the amount is below the normal requirement. Suggested meal plans and menus, of different cost, are given for each diet. It is to be remembered that these diets are only illustrative, to teach the principles of applied dietetics. The foods in the menus may be exchanged for foods of equivalent food values.

At the end of the book summaries are given to bring the data together, in order that the principles and data on which the diets are based can be easily reviewed. One of these summaries records the amounts of the food constituents required for the typical normal and therapeutic diets, to show any deviation of the therapeutic diet from the normal. Another states the amounts of foods used in various therapeutic diets, making clear the changes from the normal amounts. Still another chart supplies, in summarized form, the menus of normal and therapeutic

diets previously set forth in detail, showing how closely the normal diet can be followed by the patient, using foods already present in the family diet.

The material of the book has been arranged in its present form to be of value to workers in various fields of nutrition. It will be helpful to the *physician* in the dietetic treatment of the patient, in the office and hospital as well as in the clinic. The *social worker* will find it a means of increasing her understanding of the principles of diet therapy and of the influence of related environmental factors, and will be better able to help the patient to make the best possible social and economic adjustments to his diet. To the *student in home economics* or applied dietetics already familiar with the principles of the science of nutrition, experience in applying these principles in the treatment of an individual patient in terms of his particular needs will render them vital. The *teacher* and *public health worker*, deeply concerned in community health and serving as interpreters of scientific findings to the community, know the great need of teaching the relation of food to the body. To them the book will be a helpful guide. For instructors in nutrition it will be a help in organizing their courses. The *nurse* realizes the importance of a knowledge of nutrition as a part of the general health program, and as a therapeutic measure, and will find here how to make practical application of this knowledge.

All data upon which the book is based have been taken from the most recent and authoritative sources. While all the information given can be found scattered among various books and journals, this compilation offers, in one place, as much as possible of the material useful for planning and teaching diets.

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PART I

CHAPTER 1

THE DAILY FOOD REQUIREMENTS OF THE BODY

THE RELATION OF FOOD TO THE BODY

The body is a builder of its own substance and finds its materials in food. Food is composed of the same constituents as the body, and when taken into the body and broken down by physiological processes offers the substances with which to build and repair tissue, provide energy, and regulate the functioning of the body parts. A study of the needs of the body indicates that food must supply calcium and phosphorus for the skeleton (bones and teeth), iron for the blood, vitamins for growth and health, these and other minerals and vitamins for certain regulatory processes of the body, protein for tissue, carbohydrate and fat for energy. This relationship between the composition of food and the composition and needs of the body is basic and must be considered in all dietetic treatment, both normal and therapeutic. A knowledge of the food requirements of the body, of the food constituents necessary to fulfill them, and of the foods that are sources of the various food constituents is fundamental in the construction of a diet (Tables 1, 2, 3).

REQUIREMENTS OF FOOD CONSTITUENTS— BASIC STANDARDS

Scientific studies have shown in what amounts approximately, the food constituents of carbohydrate, protein, fat, calcium, phosphorus, iron and the vitamins are needed to keep the body in health and to prevent or alleviate certain pathological conditions.

"Average weight" refers, in this book, to the weight of the individual based on sex, height and age,—designated variously in the literature as the "desired," "normal," "ideal," "optimal," or "expected" weight. Tables giving the average weight for individuals of different ages and heights have been compiled by various authorities (Tables 5 to 8). The average weight can be only an approximate measurement, at best, since the weight of an individual is influenced by type of build and by certain other factors. Thus the average weight must have a range within a limit—a variation within 10 per cent for the adult is considered safe—and should be used only as a guide. Tables usually express the weight in pounds, but these figures may be converted into kilograms,¹ the unit of the metric system commonly used for body weight in computing food requirements (Table 6).

Protein has for its primary function the building and repair of tissue (Table 1). "There is no known life without protein." It also supplies energy, each gram providing 4 calories. The extent to which a protein can perform its function depends upon the amino acids it contains. The proteins of foods from animal sources—milk, cheese, meat, fish, poultry and eggs—contain the essential amino acids, and are designated complete protein, whereas the proteins from vegetable

¹ 1 kilogram = 2.2 pounds. 1 gram is approximately $\frac{1}{16}$ of an ounce. The units of the metric system are generally used abroad and in all scientific work (Table 14).

APPLIED DIETETICS

2

sources—bread, cereals, vegetables, legumes and nuts—contain no appreciable amounts of some of these essential amino acids, or are altogether lacking in them, and are designated incomplete protein. The soy bean, however, contains essential amino acids, and is therefore a complete protein. The protein of vegetable foods must be supplemented with animal protein to ensure the maintenance of life and the support of normal growth. It is especially important to provide for the child sufficient amounts of the protein foods that contain the essential amino acids.

For the adult, the daily requirement of protein ranges from $\frac{2}{3}$ to $1\frac{1}{2}$ grams per kilogram of average body weight (Table 2). One gram per kilogram is often given as the recommended allowance. The body may be maintained in normal condition by the use of $\frac{2}{3}$ gram per kilogram, but the usual daily intake of a person whose diet is not restricted for therapeutic or economic reasons will often approximate $1\frac{1}{2}$ grams per kilogram of average body weight.

The rapid growth of the child demands a high allowance of protein (Table 2). The daily requirement ranges from 2 to 3 grams per kilogram of average body weight. The usual daily intake of infants is $2\frac{1}{2}$ to 3 grams, of the school child from $1\frac{1}{4}$ to $2\frac{1}{2}$ grams, and of the child in his teens from 1 to 2 grams per kilogram of average body weight. These allowances are optimal and afford a 50 per cent margin of safety.*

Another standard used to compute the daily requirement of protein is based on the caloric requirement for moderate activity. On this basis it is estimated that 10 per cent of the calories required

by the adult and 15 per cent of the calories required by the child should be derived from protein.

Carbohydrate provides primarily energy for body activities, and at the same time exerts a protein-sparing action (Table 1).

For the adult, the daily requirement ranges from 4 to 6 grams per kilogram of average body weight, depending upon the degree of activity and the amount of fat used in the diet. Each gram of carbohydrate provides 4 calories (Table 2).

For the child, the carbohydrate requirement per kilogram of average body weight is much greater, to provide not only for increased energy expenditure but also for increased rate of growth. The daily requirement ranges from 6 to 10 grams per kilogram of average body weight (Table 2).

On the basis of the caloric requirement, 50 per cent to 60 per cent of the calories for the adult and 50 per cent of the calories for the child should be derived from carbohydrate.

Fat is an essential constituent of every body cell. Like carbohydrate it supplies energy for the body's activities and has a protein-sparing action (Table 1). By weight it contributes over twice as much energy as carbohydrate, giving 9 calories per gram. The daily requirement of fat for the adult ranges from 1 to 2 grams per kilogram of average body weight, depending upon the degree of activity and the amount of carbohydrate in the diet (Table 2). On this basis a proper ratio will be maintained between the carbohydrate and the fat content of the diet. Some highly unsaturated fatty acids have been shown to be nutritionally essential, but it seems permissible to assume that normal dietaries will supply

* Sherman, Henry C. *Chemistry of Food and Nutrition* 6th ed. p. 490-491, Macmillan Co., 1941.

this need without any special planning¹

For the child, the daily fat requirement ranges from 2 to 3 grams per kilo gram of average body weight (Table 2)

On the basis of the caloric requirement, 30 per cent to 40 per cent of the total calories for the adult and 35 per cent of the total calories for the child should be derived from fat

The *energy requirement* is measured in heat units expressed in calories. The body's requirement for fuel to supply energy must consider both the basal need of the body and the increased need for various grades of activity as illustrated on page 47

The *basal energy requirement*—that is, the energy requirement of the body as nearly as possible at absolute rest,—represents the minimum amount of energy needed for the inner workings of the body, such as of the heart and lungs, and for its fundamental chemical processes

There are several ways in which this can be estimated. The *actual basal energy requirement* may be determined by means of a respiration apparatus which measures the oxygen consumption of the individual, from which may be computed the basal energy requirement expressed in calories

The *body surface area* is a basis used in predicting the basal energy requirement. It is determined from the actual height and weight of the individual. By means of the Dubois Surface Area Chart or its modification (Boothby and Sandiford), and tables, giving the calories needed per square meter per day, the basal energy requirement in calories can be estimated (Tables 9 and 10)

The number of calories needed per kilo gram of body weight per day, as estimated

from many determinations of the basal metabolic rate of normal persons, is a practical method of ascertaining the basal energy requirement in terms of the *average body weight*

In a discussion of the caloric needs of children, Holt found it simpler to use the unit of body weight, and stated, "In the opinion of Benedict and Talbot there were no important differences between caloric values expressed per unit of body surface and per unit of body weight"²

The *total energy requirement* for the day may be determined by using the basal energy requirement, plus stated increases for the various grades of activity (Table 11)

Another method of determining the total energy requirement for the adult is based on the average weight and the number of calories needed per kilogram of body weight according to the degree of activity (Table 11). For the child, the total energy requirement is based on the factors of age, sex and activity (Tables 12 and 13). These methods have proved satisfactory in clinical practice

To determine whether the estimated amounts of the food constituents—carbohydrate, protein and fat—fulfill the energy requirements, the number of grams of carbohydrate and of protein are multiplied by 4, the number of grams of fat by 9, and the results are totaled. Since the amounts of carbohydrate and fat are given in proportion to the degree of activity of the individual the results should be in approximate accord with the caloric requirement based on the average weight of the individual and the degree of activity. Following the practice of supplying the food constituents in terms of body weight, it will be found that automatically the energy require-

¹ Sherman and Lanford *Essentials of Nutrition* 2nd ed. p. 23 Macmillan Co. 1943

² Holt Dr. L. Emmett, *Food Health and Growth* p. 51, Macmillan Co. 1925

ments are fulfilled, that is, if the requirement of food constituents is met, the calories will be sufficient.

The mineral requirements of the body are receiving a great deal of attention in research and in applied dietetics. Certain minerals—calcium, phosphorus, iron, iodine and copper—have been found to have most important functions in connection with the regulation of body processes. The study of other minerals, while it has not so far yielded conclusive evidence with respect to their definite relation to body processes, indicates their possible relationship to diet.

The mineral requirements of the adult are estimated to be 0.8 gram of calcium, 1.32 grams of phosphorus and 12 to 15 milligrams of iron per day (Table 2).

The child, because of increased demands for growth, needs 1 to 1.4 grams of calcium and 1 to 1.5 grams of phosphorus per day. The iron requirement of the child is based on the estimated caloric requirement, 0.5 gram of iron being allowed for each 100 calories required per day,* and according to age, the requirements are given in Table 2.

These allowances are optimal and provide a 50 per cent margin of safety. It is generally considered that if the diet fulfills the calcium, phosphorus and iron requirements, it will carry sufficient amounts of the other minerals to meet body needs. The amount of iodine in food is dependent upon the iodine in the water and soil of the region in which the food is grown.

The acid base balance is given consideration due to the claim advanced that

there is an advantage in having in the diet an excess of base forming elements over acid forming elements. However, Sherman stresses the fact that it is still an open question whether this is of practical importance to human nutrition.[†] It has been found that when sufficient kinds and amounts of food are given to supply the necessary food constituents to meet the body requirements, an excess of base forming elements is present (Tables 46 to 48).

Vitamins are considered essential for growth and health. The relative values of different foods, as sources of the various vitamins, formerly expressed by a symbol such as (+) are now given in figures. The vitamin content of an increasing number of foods has been determined and on this basis a tentative standard of requirements for human beings has been recommended by the Committee on Food and Nutrition of the National Research Council, 1941 (Table 2).

THE FOOD PRESCRIPTION

The food prescription used in this book is the statement of the amounts of the food constituents—carbohydrate, protein, fat, calcium, phosphorus, iron and vitamins—and of the calories needed, per day, by an individual of a certain age, sex, height, weight and activity. The units of measurements used are given in the Table of Weights and Measures (Table 14). The food prescription is written on the basis of the foregoing data and may be summarized as follows:

* Sherman, Henry C., and Lanford, Caroline. *Sherman Essentials of Nutrition*, p. 156, Macmillan Co., 1940.

† Sherman, Henry C., *Chemistry of Food and Nutrition*, 6th ed., p. 247-248, Macmillan Co., 1941.

SUMMARY OF BODY REQUIREMENTS IN TERMS OF FOOD CONSTITUENTS

A BASIS FOR THE FOOD PRESCRIPTION

Basic Data

Average Weight
Sex
Age
Height
Activity

*Example of Data Applied to a
Typical Individual*

155 pounds or 70 kilograms
Male
30 years
5 feet 8 inches
Moderate

Protein Standard per kilogram per day, 1-1.5

$70 \times 1.5 = 105$ grams protein

Fat Standard per kilogram per day, 1-2 grams

$70 \times 2 = 140$ grams fat

Carbohydrate Standard per kilogram per day,
4-6 grams

$70 \times 5 = 350$ grams carbohydrate

Energy Requirement per kilogram per day mod-
erate activity 40-45 calories

70×40 to $45 = 2800$ to 3150 calories

Calories from food constituents

Protein 1 gram = 4 calories
Fat, 1 gram = 9 calories
Carbohydrate 1 gram = 4 calories

$105 \times 4 = 420$ calories
 $140 \times 9 = 1260$ calories
 $350 \times 4 = 1400$ calories

Total 3080 calories

Mineral Standards per day *

Calcium 0.8 gram
Phosphorus 1.32 grams
Iron 12 milligrams

Calcium 0.8 gram
Phosphorus 1.32 grams
Iron 12 milligrams

Vitamin Standards per day *

Vitamin A 5000 I U
Thiamine micrograms 1800
Riboflavin micrograms 2700
Niacin, milligrams 18
Ascorbic Acid milligrams 75

Man	Woman
5000	5000
1800	1500
2700	2200
18	15
75	70

Vitamin A 5000 I U
Thiamine 1800 micrograms
Riboflavin 2700 micrograms
Niacin 18 milligrams
Ascorbic Acid 75 milligrams

The Food Prescription

Protein, 105 grams Fat 140 grams Car-
bohydrate 350 grams
Calories 3080
Calcium 0.8 gram, Phosphorus 1.32 grams
Iron 12 milligrams
Vitamin A 5000 I U, Thiamine, 1800 micro-
grams Riboflavin 2700 micrograms Nia-
cin 18 milligrams Ascorbic Acid 75
milligrams

* Recommended by the Committee on Food and Nutrition of the National Research Council
1941

CHAPTER 2

THE CONSTRUCTION OF THE NORMAL DIET

THE BASIS FOR THE SELECTION OF FOOD

When the food prescription has been written, a selection must be made of the kinds and amounts of food to fulfill it. In practice, the actual food intake of the individual is used as a guide in choosing the foods to be included in the prescribed diet, since it is desirable to adhere as closely to usual food habits as is consistent with health needs.

The food intake or accustomed diet of the patient, and a review of the foods that might be used to supply the food constituents needed, would seem to indicate that there is an unlimited number of different foods for choice. But when these foods are studied and classified they fall into a small number of groups, namely milk and its products, eggs, meat, fish and poultry, fats and oils, fruits, vegetables, legumes, cereals (flour, cereals, bread and crackers), sweets, and nuts.

The food constituent of which a particular group of foods is a good source determines the value to the body of the food within that group. Milk and cheese, eggs, meat, fish and poultry are given first consideration as sources of complete protein, potato, legumes, cereals, breads and nuts also contribute to the protein content, but being incomplete protein, combined with the incomplete protein, cream, butter and oils for fat, cereal products, sugar, fruits and vegetables for carbohydrate, milk, cheese, vegetables and fruits for calcium, meat, eggs, whole grain and enriched products, vegetables and fruits for iron, eggs, milk, meat, fish and certain vegetables for phosphorus, and milk and its products, fortified vegetable fats, meat, eggs, the whole grain

and enriched cereals, fruits and vegetables for vitamins (Table 3). It will be noted that many foods contain more than one of the food constituents, and may even be rich in several of them. Some contain only a single one, as sugar in the carbohydrate group, vegetable oil in the fat group.

An important development in recent years is the process of enriching foods. White bread is now enriched with thiamine, niacin and iron. Calcium, riboflavin and Vitamin D have been suggested as other desirable additions. Many cereals have been restored to the whole grain nutritive values of thiamine, niacin and iron for the various grains. In addition to this restoration some cereals are further fortified with Vitamin D. The Vitamin A content of oleomargarine and other fats has been increased. By various methods the Vitamin D content of milk can also be greatly increased. It is desirable to use these fortified foods in place of those which have been highly refined.

The protective diet is another helpful guide in fulfilling a food prescription. Science states that if certain groups of foods are included in the diet every day in certain amounts, the food constituents necessary for the protection of health will be provided adequately,—and experience verifies this.¹ The protective diet includes the following:

Milk

1 pint for the adult and 1 quart for the child daily

¹ Stuebeling and Ward, *Diet at Four Levels of Nutritive Content and Cost*. Circular No. 296, United States Department of Agriculture, Washington, D. C.

Protein foods

At least 60 to 100 grams of protein* per day
Each of the 4 foods supplies about 7 grams of protein

Complete protein	Incomplete protein
1 ounce meat	$\frac{1}{2}$ cup dried beans
1 egg	peas lentils
$1\frac{1}{2}$ ounces fish	(cooked)
1 glass milk	2 large potatoes
1 ounce cheese	1 cereal dish cereal
$1\frac{1}{2}$ table spoons soy	$2\frac{1}{2}$ slices bread
beans dried	1 ounce nuts

* At least half the amount of protein must be complete protein

Bread cereals flour and flour products

Use 8 or more servings per day

Vegetables

At least 2 servings every day A green or yellow vegetable ensures vitamin A
Potato in addition to other vegetables if desired

Fruits

At least 2 servings every day A citrus fruit daily ensures ascorbic acid

Sugar

Not more than $\frac{1}{2}$ pound a week of sugar
Other sweets as desired

Fats

9 teaspoons per day of fat including butter oleomargarine and other kinds of fat
At least 3 teaspoons should be fats containing vitamin A

This is a general statement of the optimal amounts of food that provide the necessary food constituents and sufficient calories. The choice of foods in the diet should always have reference to the specific needs of the individual. Individual taste may be satisfied by substituting for a food not desired another of approximately equivalent value,—a procedure discussed in detail in the following pages.

Environmental factors must receive careful consideration in the construction of a diet, since the practice of good habits of hygiene, mental as well as physical, is essential to the success of treatment and is dependent in part upon conditions in the home, the school, and in occupation (Part I, Chapter 4)

A *nutritional history* of the patient, obtained with the aid of a special outline (p. 8) will be found helpful in the study of environmental factors. The data secured need not follow the sequence specified in this outline but may be set down according to the response, interest and attitude of the patient as the conference or interview proceeds.

The form for the Nutritional History of the child uses the heading "School," instead of "Occupation" and "Education" as for the adult, and the family relationships are given in greater detail.*

*SCHOOL	Location	Distance	Walk	Ride
Grade		Recess		
Hours A.M.		Lunch Time		
P.M.		Study Periods		
Leaves for School—Time		Returns from School—Time		
Extra School Activities	Home Lessons —	Hours of study		
	Music Lessons —	Hours of practice		
	Other Lessons —	Hours		
	Athletics	Time for play		Other activities

FAMILY RELATIONSHIPS

Attitudes

Parents to each other
Parents to children
Children to parents
Children to children

Child to relatives

Relatives to child

Type of Parents

Mother
Father

NUTRITIONAL HISTORY—ADULT

Name	Diagnosis	Nationality	Date
		Language	BD No
Address		Religion	SS in BD
			SS Outside
			SEDK
Sex	Age	Ht	Ft
	In	Av Wt	Lbs
	Kilos	Pr Wt	Lbs
	Kilos		

FAMILY	No	Sex	Age	Occupation	Health
--------	----	-----	-----	------------	--------

Adults

Children

OCCUPATION

Type of Work

Home

Outside Home

EDUCATION

Previous Training

Graduated from

Present

Trade School

Evening School

Extension Classes

Music Lessons

Continuation School

Other

HOUSE—Rooms no	Piazza	Source of heat
Bedrooms No	Flights	Ventilation
Toilet—common	Yard	No windows
private		

Bathroom

location

light

water—hot cold

how supplied—summer winter

Bathub—stationary

portable

Shower

Household Equipment : Facilities for Food Preparation

Stove—Kind

Saucepan—Sieve—Kettle

Refrigerator—Kind

Double Boiler —Mixing Bowl

NEIGHBORHOOD accessibility to Public bath—Public playground—Park—Community center use of

INCOME OF FAMILY Total Amount

Earnings	Aid Public	Private	Other sources
----------	------------	---------	---------------

Expenditures

Rent

Light and Heat

Electricity

Gas

Wood

Coal

Oil

Ice

Cafare

Insurance

Clothing

Church

Recreation

Laundry

Cleaning Material

Food

HYGIENE—Days Routine

Rising time	Breakfast time	Rest	Time	Place
-------------	----------------	------	------	-------

Cleanliness of Body

Equipment Soap—face cloth—towel—nail brush—file—comb—brush—

Washing	Frequency	Head	Neck	Ears	Hands	Nails
Facilities	Place	Type				

Bathing

Frequency	Facilities	Tub	Shower	Sponge	Municipal
-----------	------------	-----	--------	--------	-----------

Care of Teeth—Frequency of cleaning

Equipment brush

Condition of teeth

Dental care

Elimination	Time	Bowel	Urination
-------------	------	-------	-----------

Sleeping Conditions

Location		
Bedroom	Size	No occupants
Windows	Open	Closed
Bed No in	With whom	
Bedtime	Hours of sleep	Kind of sleep
Bedclothes	Amount	Kind

RECREATION

Clubs	Special interests
Classes	Athletics
Movies	Reading
Radio	Home—Library
	Type of Literature

RELATIONSHIPS

Family

Occupation

Companions

Mental Attitudes

MEALS Place Hour Time Allowed Time Taken Use of Difference

Breakfast
Noon Meal
Night Meal
Extra Meals
Regularity
Appetite
Companionship
Atmosphere at meals
Method of service in the home
Table Self Family

FOODS

Attitudes Satisfactory Unhappy Finicky
Resistant Resentful Dissatisfied
Idiosyncrasies
Mastication

FIRST VISIT FOOD INTAKE FOR THE DAY			FAMILY PURCHASES		FOOD HABITS
MEALS	Foods	Total Amts	Per Week	Cost	
BREAKFAST	Milk Fresh				
	Milk Canned				
	Cheese				
	Eggs				
	Meat				
	Fish				
	Bacon				
	Cream				
NOON MEAL	Butter				
	Fat-Oil				
	Fruit				
	Fruit Dried				
	Vegetables				
	Legumes				
	Potato				
	Cereal white				
NIGHT MEAL	Cereal Wh Gr				
	Bread white				
	Bread Wd Gr				
	Crackers				
	Flour				
	Sugar				
	Desserts				
	Tea				
EXTRAS	Coffee				
	Cocoa				
	Candy				
Total Money Spent per Week					Food Deficiencies
					C P F Ca Fe vitamin A thiamine riboflavin niacin

NUTRITION—Food Intake—

Ford Constituents

Food:

Food Habits and Meals

Food Money

HYGIENE

Personal—Body Cleanliness

Community—Neighborhood

Mental-Family Relationships

Health Habits

Recreation

Attitudes toward food

EDUCATION OF PATIENT

Food and Body Needs

Food Values

Budgeting

Habit Training—Food and Hygiene

Materials Used

FOOD ORDER PER DAY

DATE _____

[illegible]

FORM FOR COMPUTATION OF DIETS—USED FOR PATIENTS

CALCULATION OF DIET

B D No

AV WT — KILOS

NAME

CARD

Date	FOODS	FOOD ORDER						FOOD INTAKE					
		GRAMS			MILLI GRAMS			GRAMS PER MEAL			GRAMS		
		Total Amt	C	P	F	Ca	Fe	I U	Micro-grams Thia mine	Micro-grams Riboflavin	Micro-grams Niacin	Milli-grams Ascorbic Acid	Milli-grams
194													
ORDER	Milk												
	Cheese												
	Eggs												
	M F C												
	Bacon												
	Butter												
	Fats												
	Fruit %												
	%												
	%												
	veg %												
	%												
	Potato												
	Cereal												
	Bread												
	Crackers												
	Sugar												
	Dessert												
	Totals												

Total Cal.

FORM FOR COMPUTING THE PATIENT'S DIET

With an understanding of the environmental influences and the food habits of the individual, and with the standards of the protective diet in mind, the diet can then be computed to fulfill the requirements of the food prescription as outlined in Part I, Chapter 1, page 5. It is helpful to group the foods that are the sources of the same food constituent, using for that purpose a computation card such as the one given here (p 12), or a similar form.

In the form illustrated (p 14), the foods of the first group gave, primarily, protein, the next fat, and the third, carbohydrate. As most of these foods contain minerals and vitamins as well each food must be checked also for its content of calcium, phosphorus, iron and vitamins. When the prescription is filled, the total amounts of the various food constituents can be found and recorded at the bottom of the computation sheet. From the total number of grams of carbohydrate, protein and fat the total calories can be estimated.

FOOD VALUES AND MEASURES

In the Table of Food Values and Measures can be found the amount of a serving of a particular food in terms of its weight in grams and its household measure, and the amounts of the various food constituents that it supplies (Table 15). In the case of milk, for example, the

table states that one cup weighs 240 grams and contains 12 grams of carbohydrate, 8 grams of protein, 9.5 grams of fat, 0.283 gram of calcium, 0.223 gram of phosphorus, 0.5 milligram of iron, 461 I U of vitamin A, 125 micrograms of thiamine, 523 micrograms of riboflavin, 0.22 milligram of niacin, 3 milligrams of ascorbic acid, and 5 I U of vitamin D. The carbohydrate, protein and fat are figured to one decimal point, but for convenience the fraction may be disregarded, or rounded to the next whole number, for example, the figure for fat in milk may be rounded to 10 grams. If more than one serving of a food is required, the desired amount may be determined through multiplication.

COMPUTING THE DIET

The purpose of computing the amounts of the various foods in the diet is to secure the total amount of food constituents required for body needs. There is no definite procedure determining which of the food constituents—protein, fat or carbohydrate—shall be given first consideration. In order to have definite figures for the following example of the method of computing the diet, specific foods were chosen to fulfill the food prescription given on page 5. The following selection of food is *not* arbitrary.

Protein is considered first here in the same order as on the computation sheets (pages 12-14).

FOODS SELECTED FOR PROTEIN VALUES*

Foods	Amounts		Grams						Milk grams	I U	Micro- grams	Micro- grams	Milli grams	Milli grams
	House hold Measure	Grams	Car- bohy- drate	Pro- tein	Fat	Cal- cium	Phos- phorus	Iron	Vita- min A	Thia- mine	Ribo- flavin	Niacin	Ascor- bic Acid	
Milk	2 c	480	24	16	19	566	446	1	922	2.0	1046	44	6	
Cheese	2 T	30	1	7	10	270	210	3	450	7	165	06		
Egg	1	50		7	5	027	112	1.5	500	75	125	03		
Meat poultry	4 oz	120		20	26	012	200	2.8		180	240	9.44		

* 4 T gelatin and 1 cup bouillon can be written in the computation sheet and would contribute 8 grams of incomplete protein.

FORM FOR THE COMPUTATION OF DIETS—USED WITH STUDENTS

TYPICAL DIET FOR

Name	Sex	Age	Ht	Ft	In	Av Wt	Lbs	K	Pr Wt	Lbs
Record No	Occupation		Activity			Income				
Nationality										

Food Constituents and Calories Required for	Gram			Calories	Grams		Mili grams	I U	Micro grams	Micro grams	Mili grams	Mili grams
	Carbo-hydrate	Pro-tein	Fat		Calcium	Phos-phorus	Iron	Vitamin A	Thia-mine	Ribo-flavin	Niacin	Ascor-bic Acid
Normal Diet												
_____ Diet												

COMPUTATION OF DIET

Foods	Amounts		Grams					Mili grams	I U	Micro grams	Micro grams	Mili grams	Mili grams
	House hold Measure	Grams	Carbohy-drate	Pro-tein	Fat	Cal-cium	Phos-pho-rus	Iron	Vita-min A	Thia-mine	Ribo-flavin	Niacin	Ascor-bic Acid
Milk													
Cheese													
Egg													
Meat poultry													
Fish													
Cream													
Butter													
Oil													
Other fats													
Fruit %													
%													
or													
Vegetables													
%													
%													
Potato													
Bread White													
Whole Grain													
Other breads													
Crackers													
Cereals Refined													
Whole Grain													
Sugar													
Jelly													
Molasses													
Other sweets													
Candy													
Desserts													
Beverages													
Totals of the Food Constituents													
Calories from the Food Constituents													
Total Calories													

Signed

When the figures of the columns are added the following amounts will be found toward fulfilling the requirement of the food prescription

Carbohydrate	25	grams
Protein	58	grams
Fat	60	grams
Calcium	884	gram
Phosphorus	968	gram
Iron	5.6	milligrams
Vitamin A	1572	I U
Thiamine	512	micrograms
Riboflavin	1576	micrograms
Niacin	9.97	milligrams
Ascorbic Acid	6	milligrams

It will be noted that milk is the only one of these protein foods to carry car-

bohydrate. They provide, however, 50% of the complete protein needed, nearly 50% of the fat, calcium sufficient for the adult, almost all the phosphorus required, and $\frac{1}{2}$ the requirement of iron.

Fat is the next food constituent considered. With 60 grams of fat already contributed by the protein foods, sufficient amounts of other foods that are rich sources of fat will fulfill approximately the requirement of 140 grams. The following selection is made—again remember the choice is not arbitrary.

FOODS SELECTED FOR FAT VALUES

Foods	Amounts		Grams					Milligrams	I U	Micrograms	Micrograms	Milligrams	Milligrams
	Household Measure	Grams	Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Cream, light	$\frac{1}{2}$ c	120	6	4	24	112	096	2	1416	40	200		
Butter	6 t	30			24	004	004		810				
Mayonnaise	3 t	15	5		11	002	005	1	30	4	10		

When the figures of the columns are added the following amounts will be found toward fulfilling the requirement of the food prescription

Carbohydrate	6.5	grams
Protein	4	grams
Fat	50	grams
Calcium	118	gram
Phosphorus	105	gram
Iron	11	milligram
Vitamin A	2256	I U
Thiamine	41	micrograms
Riboflavin	210	micrograms
Niacin	—	milligrams
Ascorbic Acid	—	milligrams

These foods will be seen to be valuable primarily for their fat and vitamin A content.

Carbohydrate is the third group of food constituents to be considered here. The amount needed for the food prescription

is 350 grams. It will be noted that the foods already selected for protein and fat do not carry significant amounts of carbohydrate, and that only the limited amount of 31.5 grams has been accumulated. The foods that are chief sources of carbohydrate—fruits, vegetables (especially potato), bread, crackers, cereals, sugars, jellies and desserts—will provide the amounts necessary to fulfill the carbohydrate requirement. In the following selection special foods are chosen from the different groups of food used—for example rolled oats from the cereal group and the orange from the fruit group—to demonstrate that some foods relied upon for carbohydrate will make significant contributions also of minerals and vita-

FOODS SELECTED FOR CARBOHYDRATE VALUES

Foods	Amounts		Grams				Milli-grams	I U	Micro-grams	Micro-grams	Milli-grams	Milli-grams	
	House- hold Measure	Grams	Carbo- hydrate	Protein	Fat	Calcium	Phos- phorus	Iron	Vitamin A	Thia- mine	Ribo- flavin	Niacin	Ascorbic Acid
Fruit													
10 per cent--orange	1 m	100	11	1		0*4	019	4	225	110	50	22	34
15 per cent--apple	1 m	150	21	1	1	011	018	6	108	60	45	5	9
20 per cent--bananas	1 m	80	12	5		004	014	3	175	75	38	51	5
Vegetables													
5 per cent--tomato	1 m	100	4	1	5	007	0*1	6	1000	75	45	38	23
5 per cent--lettuce	3 lbs	30	1	5		023	009		1800	23	45		5
5 per cent--string beans	1 a d	100	7.5	2.5		065	044	1.4	1000	75	110	64	25
10 per cent--carrots	1 a d	100	9.5	1	5	045	041	6	6000	100	90	1.47	4
Potato	1 L	200	38	4		0*7	114	2.6	60	200	60	2.56	20
Bread white enriched	3 a l	90	48	7.5	1.5	080	090	9		169	156	81	
whole wheat	2 a l	80	30	6	1	030	090	1.3		10	108	1.24	
Flour	1 T	7	5	5		001	007	1		75	18	09	
Crackers	2	8	6	1	1	00.	008	2					
Cereals													
Maccaroni cooked	2 c	150	22	4	5	006	044	4		15		11	
Oats rolled cooked	2 c	180	18	5	2	018	126	1.5		219	65	40	
Sugar	6 t	45	45										
Jelly	6 t	60	30										
Desserts													
Cake	2 c u		26	2	4	018	112	3	154	62	69	20	

When the figures of the columns are added the following amounts will be found toward fulfilling the requirement of food prescription

Carbohydrate	334	grams
Protein	37.5	grams
Fat	12	grams
Calcium	334	gram
Phosphorus	676	gram
Iron	11.1	milligrams
Vitamin A	10 222	I U
Thiamine	1380	micrograms
Riboflavin	919	micrograms
Niacin	9.18	milligrams
Ascorbic Acid	144	milligrams

It will be noted that these foods supply almost the total carbohydrate required. However, they provide only incomplete proteins. The minerals and vitamins are in small amounts but make significant contribution to the total because these foods are eaten in abundance.

The total figures for the different food constituents show that the foods selected practically and satisfactorily fulfill the food prescription, as follows

TOTAL VALUES OF FOODS SELECTED FOR FOOD PRESCRIPTION

	Grams			Cal- ories	Grams		Milli-	I U	Micro-	Micro-	Milli-	Milli-
	Car- bohy- drate	Pro- tein	Fat		Cal- cium	Phos- phorus	Iron	Vita- min A	Thia- mine	Ribo- flavin	Niacin	Ascor- bic Acid
Food Prescription	350	105	140	3080	8	1.32	12	5000	1800	2700	18	75
Computed Diet	365.5	99.5	131	3030	1.236	1.749	17	14350	1936	2705	19.15	150

The *calories* are checked by multiplying the total grams of carbohydrate and protein by 4, the fat by 9, and totaling the results. It has been stated (Part I, Chapter 1) that the amounts of carbohydrate and fat are prescribed according to the degree of activity. Therefore it is evident that if the food prescription for carbohydrate, protein and fat is fulfilled, the caloric requirement will be met.

The *minerals* are assured in adequate amounts since this diet is based on the plan of the protective diet. The calcium is adequate because liberal amounts of milk and cheese are used. The milk, eggs, meat, whole grain bread and cereal provide sufficient phosphorus. The iron comes largely from the meat, egg, whole grain and enriched bread and cereal, fruits and vegetables (Table 3). Other minerals, such as copper and manganese (Tables 37, 38), although important in the diet, are not computed here since it is generally assumed that a diet which supplies sufficient amounts of calcium, phosphorus and iron will carry these other minerals in amounts adequate for safety. Not until there is a pathological condition does definite consideration need to be given to iodine.

The *vitamins* will also be assured in sufficient amounts, since this diet contains the foods included in the protective diet. The adequacy of the vitamin content is verified by calculating the vitamin values of the various foods (Table 15).

The *acid base balance* need not be a matter of concern because a protective diet contains liberal amounts of milk, fruits and vegetables, which give a basic ash and therefore there is in this diet a sufficient excess of alkaline ash over acid ash (Table 48).

If in constructing a diet it is found that the kinds and amounts of food selected do not meet the food prescription, it will be necessary to increase or decrease the amounts of food used, or to substitute

foods with different food values, until the need is approximately met. After becoming familiar with the composition of the foods, the food prescription can usually be filled at the first computation, with few, if any, changes.

FOOD FOR THE DAY

Since the patient must assume the responsibility for carrying out the diet in the interval between visits to the clinic, information given him relative to the diet, to be of practical use, should be in accord with his established food habits, tastes and income, and should be presented to him in a clear and concise manner (Part I, Chapters 5 and 6).

The kinds and amounts of food that have been selected with the patient to fulfill the food prescription may be listed on a special form as follows:

FORM WITH FOODS FOR THE DAY WRITTEN IN, TO GUIDE THE PATIENT IN CARRYING OUT THE FOOD PRESCRIPTION

Food for the Day

Milk	2 cups
Cheese American	1 ounce or 2 tablespoons
Egg	1
Meat	4 ounces or $\frac{1}{2}$ pound
Cream light	$\frac{1}{2}$ cup
Butter	6 teaspoons
Mayonnaise	3 teaspoons
Fruits	
10 per cent	1 serving
15 per cent	1 serving
20 per cent	1 small serving
Vegetables	
5 per cent	2 servings
10 per cent	1 serving
Potato	1 large
Bread	5 slices
Crackers	2 saltines
Cereal	2 servings
Sugar	9 teaspoons
Jelly	6 teaspoons
Desserts	
Cake plain	2 inch cube
Gelatin	$\frac{1}{2}$ tablespoon
Bouillon	1 cup
Beverages	
Tea and coffee as desired	

FOODS SELECTED FOR CARBOHYDRATE VALUES

Foods	Amounts		Grams					Mili grams	I U	Micro grams	Micro grams	Mili grams	Mili grams
	House- hold Measure	Grams	Carbo- hydrate	Protein	Fat	Calcium	Phos- phorus	Iron	Vitamin A	Thia- mine	Ribo- flavin	Niacin	Ascor- bic Acid
Fruit													
10 per cent--orange	1 m	100	11	1		0.4	018	4	225	110	50	20	54
11 per cent--apple	1 m	150	21	1	1	011	018	6	108	60	45	75	9
9 per cent--banana	1 m	80	12	5		004	014	3	175	25	55	51	5
Vegetables													
5 per cent--tomato	1 m	100	4	1	5	007	011	6	1000	75	45	55	22
5 per cent--lettuce	3 lbs	30	1	5		023	009		1800	23	45		5
5 per cent--string beans	1 s d	100	7.5	2.5		005	044	1.4	1000	75	110	64	25
10 per cent--carrots	1 s d	100	9.5	1	5	045	041	6	6000	100	90	1.47	4
Potato	1 L	100	38	4		0.2	114	2.8	80	200	80	2.35	20
Bread white enriched	3 al	90	45	7.5	1.5	060	090	9		198	155	81	
whole wheat	2 al	60	30	6	1	030	090	1.2		162	105	1.24	
Flour	1 T	7	5	5		001	001	1		6	15	09	
Crackers	2	5	6	1	1	002	003	2					
Cereals													
Macaroni cooked	1 c	150	42	4	5	006	044	4		15		11	
Oats rolled cooked	1 c	180	15	5	2	016	116	1.5		219	65	40	
Sugar	9 t	45	45										
Jelly	6 t	40	30										
Desserts													
Cake	2 cu		5	2	4	018	031	3	154	62	68	20	

When the figures of the columns are added the following amounts will be found toward fulfilling the requirement of food prescription

Carbohydrate	334	grams
Protein	87.5	grams
Fat	12	grams
Calcium	334	gram
Phosphorus	676	milligrams
Iron	11.1	milligrams
Vitamin A	10,222	I U
Thiamine	1380	micrograms
Riboflavin	919	micrograms
Niacin	9.18	milligrams
Ascorbic Acid	144	milligrams

It will be noted that these foods supply almost the total carbohydrate required. However, they provide only incomplete proteins. The minerals and vitamins are in small amounts but make significant contribution to the total because these foods are eaten in abundance.

The total figures for the different food constituents show that the foods selected practically and satisfactorily fulfill the food prescription, as follows

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	Grams			Cal ories	Grams		Mili grams	I U	Micro- grams	Micro- grams	Mili gram	Mili grams
	Car- bohy- drate	Pro- tein	Fat		Cal- cium	Phos- phorus	Iron	Vita- min A	Thia- mine	Ribo- flavin	Niacin	Ascor- bic Acid
Food Prescription	350	105	140	3080	8	1.32	12	5000	1800	2700	15	75
Computed Diet	365.5	99.5	131	3039	1.336	1.749	17	14350	1936	2705	19.15	150

The calories are checked by multiplying the total grams of carbohydrate and protein by 4, the fat by 9, and totaling the results. It has been stated (Part I, Chapter 1) that the amounts of carbohydrate and fat are prescribed according to the degree of activity. Therefore it is evident that if the food prescription for carbohydrate, protein and fat is fulfilled, the caloric requirement will be met.

The *minerals* are assured in adequate amounts since this diet is based on the plan of the protective diet. The calcium is adequate because liberal amounts of milk and cheese are used. The milk, eggs, meat, whole grain bread and cereal provide sufficient phosphorus. The iron comes largely from the meat, egg, whole grain and enriched bread and cereal, fruits and vegetables (Table 3). Other minerals, such as copper and manganese (Tables 37, 38), although important in the diet, are not computed here since it is generally assumed that a diet which supplies sufficient amounts of calcium, phosphorus and iron will carry these other minerals in amounts adequate for safety. Not until there is a pathological condition does definite consideration need to be given to iodine.

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If in constructing a diet it is found that the kinds and amounts of food selected do not meet the food prescription, it will be necessary to increase or decrease the amounts of food used, or to substitute

foods with different food values, until the need is approximately met. After becoming familiar with the composition of the foods, the food prescription can usually be filled at the first computation, with few, if any, changes.

FOOD FOR THE DAY

Since the patient must assume the responsibility for carrying out the diet in the interval between visits to the clinic, information given him relative to the diet, to be of practical use, should be in accord with his established food habits, tastes and income, and should be presented to him in a clear and concise manner (Part I, Chapters 5 and 6).

The kinds and amounts of food that have been selected with the patient to fulfill the food prescription may be listed on a special form as follows:

FORM WITH FOODS FOR THE DAY WRITTEN IN, TO GUIDE THE PATIENT IN CARRYING OUT THE FOOD PRESCRIPTION

Food for the Day

Milk	2 cups
Cheese American	1 ounce or 2 tablespoons
Egg	1
Meat	4 ounces or $\frac{1}{2}$ pound
Cream light	$\frac{1}{2}$ cup
Butter	3 teaspoons
Mayonnaise	3 teaspoons
Fruits	
10 per cent	1 serving
15 per cent	1 serving
20 per cent	1 small serving
Vegetables	
5 per cent	2 servings
10 per cent	1 serving
Potato	1 large
Bread	5 slices
Crackers	2 saltines
Cereal	2 servings
Sugar	9 teaspoons
Jelly	6 teaspoons
Desserts	
Cake plain	2 inch cube
Gelatin	$\frac{1}{2}$ tablespoon
Bouillon	1 cup
Beverages	
Tea and coffee as desired	

is irritating to the ulcer and must be softened as much as possible or removed by cooking and straining. Enriched white bread and very finely ground whole grain or enriched cereals should be used in preference to the coarser products. Because concentrated sweets may ferment and produce gas, they should be given only in very small amounts. Certain of the protein foods, as meat, fish and poultry, contain fiber which should be avoided. These foods, and soups, gravies and chowders made from them, contain extractives which stimulate the flow of the hydrochloric acid, for which reason they should be omitted until the patient is convalescent. Other causes of irritation are the acid tasting foods, condiments, spices, coffee, tea, cocoa, very hot or cold foods and fried foods. Orange juice and tomato juice, although acid tasting foods, should be given as soon as possible for their ascorbic acid content. If diluted or given after other foods, they may be tolerated very early in the treatment. The use of alcohol and tobacco is usually strictly prohibited as nicotine stimulates the flow of hydrochloric acid. The meals should be small in amount, with regular feedings between meals so that some food will be present in the stomach at all times to prevent free acid from irritating the ulcer. Milk combines readily with hydrochloric acid and if given regularly at frequent intervals helps to lessen the irritation. Not only must there be conditions for physical rest, but in the treatment of the ulcer patient special attention must be given to causes of emotional disturbances, which prevent the effectiveness of the diet.

Bleeding ulcer, when treated according to the Meulengracht diet uses the food as in the last column on page 181. The principle for dietary treatment of ulcer holds good for the Meulengracht diet. Its principal value is to give sufficient of

the food constituents to compensate for malnutrition caused by hemorrhage. However, some authorities give nothing by mouth until the bleeding has stopped.

In gastritis the treatment parallels the treatment of ulcer.

In underweight, there is a need of food in excess of normal body requirements, to provide for storage of adipose tissue. Therefore, larger amounts of carbohydrate and fat are given, to increase the caloric value of the intake. There must also be sufficient thiamine to help metabolize the carbohydrate, and to stimulate the appetite for the required amount of food. It is important to find the cause of the underweight,—whether it is due to insufficient amounts of the food constituents and of the kinds of foods to supply them, to poor utilization of the food eaten, or to emotional or endocrine factors. The treatment of these conditions is necessary for the effectiveness of the diet. Care should be taken to choose as sources of the food constituents foods which are most acceptable to the patient, to encourage him to take the desired amounts. Too much bulk is not desirable because it gives a feeling of satiety. Sources of concentrated carbohydrate and fat, such as sugar, cream and butter, are used, but these must be given carefully because they cloy the appetite if taken in too large amounts (Parts III, Dietary Outlines and IV, Diets).

In order that sufficient amounts of food shall be taken, it is frequently desirable to give intermediate feedings, but if this destroys the appetite for the regular meals they should be omitted and the necessary amount of food for the day taken in the regular meals.

In obesity, there is an excess storage of adipose tissue. Here again it is essential to learn the cause, emotional or pathological, underlying the condition. It is

evident that the procedure in dietetic treatment is to reduce the amount of the food constituents, carbohydrate and fat, thereby decreasing the caloric value of the intake. The protein remains normal. Although the amount of food is limited, the foods chosen should supply minerals and vitamins sufficient for the protection of health, and provide sufficient bulk to give a feeling of satisfaction (Parts III Dietary Outlines and IV, Diets).

In diabetes, the body part affected is known to be the Islands of Langerhans of the pancreas, the dysfunction of which results in a deficiency of insulin. Insulin is the internal secretion of the pancreas which is of fundamental importance for proper carbohydrate metabolism. New discoveries have been made in the interrelation of the secretions of the endocrine glands to the pancreas, mainly the pituitary, adrenals and thyroid. Although the evidence for this relationship is significant it is not as yet conclusive. However, the influence of endocrine secretions should be given consideration in the treatment of diabetes. For instance, in studies of the pancreas in relation to other endocrine glands it has been found that when there is an excess amount of these other endocrine secretions it disturbs the normal equilibrium between the insulin and the secretions of these glands, and necessitates an increased amount of insulin for carbohydrate metabolism.

It has also been found through experimentation that insulin and high amounts of fat in the diet lessen the amount of insulin secreted by the pancreas, thereby resting it. It may also be assumed that high amounts of carbohydrate will increase the secretion of insulin by the pancreas, thereby placing a strain on the pancreas unless sufficient insulin is given to protect it.

From the above evidence many authori-

ties believe today that diets low in carbohydrate and liberal in fat should be prescribed, and insulin should be administered if necessary early in the treatment of the disease and in sufficient quantity to metabolize all of the carbohydrate prescribed in the diet.

These new discoveries and changing viewpoints have influenced the type of diet advocated for the diabetic, and there are many types of diets according to the belief of various authorities. The evident procedure, in any case, however, is to consider a modification of the food constituents that will counterbalance the deficiency of insulin. Bottle insulin should be given if necessary to insure the metabolism of the entire amount of carbohydrate needed by the body and to keep the blood sugar level within the normal range and the urine approximately sugar free. Even in the diet with insulin, about one half the carbohydrate, one to one and one half times the fat and the same amount of protein of the average normal diet is usually prescribed. The caloric value of the intake thus provided is satisfactory since it is desirable for the diabetic to stay within his normal weight, and since most patients seem to gain weight more easily when taking insulin. It has also been shown that if the caloric value of the intake is below the normal requirement over a period of time, the basal metabolic rate will be lowered thereby decreasing the actual requirement of food. Present day methods of treating diabetes allow the inclusion in the diet of amounts of carbohydrate foods adequate for body needs. This obviates the need of special "diabetic foods," such as diabetic bread and other products.

When there is a high blood cholesterol the fat is greatly decreased and vegetable fats are given. In associated conditions such as underweight the carbohydrate

may be low normal and the fat may be high normal. When the diet is decreased in carbohydrate and fat, the minerals may remain normal, but it is almost impossible to satisfy the standard vitamin requirements without medication.

For normal growth and development the child patient requires a normal diet with sufficient insulin to utilize it. Concentrated sweets are omitted.

In **liver disorders**, it must be remembered that "every kind of food ingested demands activity on the part of the liver." The liver is so closely involved in the metabolism of the various food constituents that these must be carefully evaluated in the diet according to the type and extent of the impairment of the liver function.

"The loading of the liver with glycogen establishes a most favorable condition for the functioning of the liver." In both acute and chronic liver disorders the carbohydrate is given fifty per cent above the normal.

The migration of fat to the liver is small when the liver is charged with glycogen and protein. This is the most prophylactic condition for the liver. The fat content in the diet is reduced in chronic and acute disorders and in hypercholesterolemia. When the biliary secretion is lessened and fails to reach the intestines and impairs the digestion and absorption of fat, the fats are decreased.

The liver has a most important part in protein metabolism, converting the products of the cleavage of amino acids (ammonium salts) into urea. The liver also plays an important role in the storage of protein, and this reserve protein helps to protect the liver.

Since only foods containing sterols from vegetable sources are used in hypercholesterolemia, the vitamin content of this diet is diminished. In all the diets

the foods must be carefully calculated with respect to their vitamin content. Medication will often be necessary, as thiamine, niacin, and riboflavin, especially, seem to have a protective action for the liver.

Diseases of the biliary tract are closely associated with liver disorders. As a precaution in liver disturbances the dietary principle involved in the dietetic treatment of the gall bladder is generally followed, even when the biliary tract is not affected. The diet prescribed is bland, non irritating and non stimulating.

Alcohol is prohibited by clinicians, and tea and coffee are not generally allowed.

Meals are taken customarily, with intermediate feedings, usually of fruit juices, to help fulfill the high carbohydrate requirement.

In **gall bladder disturbances**, of certain types, the diet usually given is low in fat (Table 26) and contains normal or increased carbohydrate, normal amounts of protein, normal amounts of minerals and high amounts of vitamins. The foods chosen should be those that are easily digested. Condiments and a high residue are contraindicated to avoid distention and increased peristaltic action of the intestines with consequent irritation of the gall bladder (See Part III, Peptic Ulcer). Usually small meals are given at frequent intervals.

In the **ketogenic diet**, the carbohydrate is reduced to the lowest practical minimum and the fat is greatly increased, which results in an incomplete oxidation of the fat, producing a ketosis. The protein is low normal. It is impossible to supply the normal requirement of minerals and vitamins by the foods allowed in the diet and therefore the minerals and vitamins are prescribed as medication. Fillers which have no food value, such as agar jelly and bran wafers, help to give

a feeling of fullness and satisfaction and provide a means of utilizing the cream and butter in the diet (Parts III, Dietary Outlines and IV, Diets, and Table 55)

In **nephritis**, the kidneys are affected. The protein content of the diet is modified according to the type of disease. In acute nephritis the protein is decreased to low normal, or even much below the normal, to lessen the work of the kidneys. The carbohydrate and fat remain normal except that the high normal is often used to provide sufficient calories when the protein is greatly lowered. In the presence of edema the fluids are restricted, depending on the previous day's output of urine.

In subacute nephritis, it is now common practice to give adequate amounts of protein, although many physicians restrict animal protein to a minimum and some omit it from the diet entirely. In the nephrotic type with edema the protein is increased in an attempt to replace its loss from the body. The fat content is sometimes reduced on the theory that this will reduce the blood cholesterol which is usually high. The other food constituents should be given in normal amounts. In the treatment of edema, some authorities recommend administration of acid salts together with a neutral diet or one containing a preponderance of acid ash and restriction of sodium chloride (Table 40).

In chronic nephritis, the normal diet is given and the output of urine determines the amount of fluid intake allowed. Protein is restricted in the terminal stages of renal failure (Parts III, Dietary Outlines and IV, Diets).

In pregnancy, care must be taken to provide minerals and vitamins in adequate amounts and the content of the normal diet is increased with respect to these food constituents. If the food in-

take does not provide them in sufficient amounts, medication should be given. During the last months of pregnancy it is usual to increase the caloric content of the diet, but when there is an excessive gain in weight the caloric value of the intake may have to be restricted. When kidney complications are present the protein intake is reduced. For the condition of pernicious vomiting in pregnancy, the carbohydrate is increased to provide a glycogen reserve, and the fat, which is usually not well tolerated, is decreased. Small, frequent feedings of dry food with little or no fluids are usually better tolerated in this condition (Parts III, Dietary Outlines and IV, Diets).

In **rickets**, there is a faulty metabolism of calcium and phosphorus due to an incorrect balance between calcium and phosphorus and vitamin D as a result of dietary deficiencies or poor environmental conditions, or both. If the requirement of calcium and phosphorus cannot be supplied by the diet, medication should be prescribed. It is most important that children especially have sufficient fish liver oil to supply the required vitamin D. However milk can be greatly increased in vitamin D value by various methods. Liberal amounts of vitamin A and ascorbic acid also should be supplied for skeletal development, for "care must be taken not to attribute entirely to vitamin D what is here partly due to vitamins A and C also."¹ The diet should contain adequate amounts of the other food constituents (Part III, Dietary Outlines).

For *other diseases* not included in the Dietary Outlines (Part III) and for which diet is a part of medical treatment, the construction of the diet can be evolved by consideration of the factors given under

¹ Sherman, Henry C. *Chemistry of Food and Nutrition*. 4th edition. p. 415. Macmillan Co. 1932.

DIET THERAPY IN TERMS OF FOOD CONSTITUENTS

Carbohydrate			Impaired reproduction and lactation	+
Acidosis			Lowered resistance of mucous membrane of respiratory and gastrointestinal tract to infection	+
Epilepsy	-		Night blindness	+
Pregnancy	+		Ophthalmia, Xerophthalmia, Keratomalacia	+
Pyelitis	-		Pregnancy and lactation	+
Diabetes	-			
Diarrhea	+		Thiamine	
<i>Hypert thyroidism</i>	+		Anorexia	+
Liver disorders	+		Beri beri	+
Obesity	-		Circulatory disturbances	+
Underweight	+		Digestive disturbances	+
			Disturbances of central nervous system	+
Protein			Impaired reproduction and lactation	+
Liver disorders	N		Muscular weakness	+
Nephritis			Pellagra	+
Acute	-		Polyneuritis	+
Chronic	N		Pregnancy and lactation	+
Nephrosis	+			
Pregnancy (toxaemia)	-		Riboflavin	
			Anorexia	+
Fat			Cheilosis	+
Acidosis			Digestive disturbances	+
Epilepsy	+		Disturbances of central nervous system	+
Pregnancy	-		Lesions of mucous membranes and skin	+
Pyelitis	+		Lowered resistance to infection	+
Diabetes	N		Microscopic changes in eyes	+
Diarrhea	-		Pellagra	+
Gall bladder disturbances	-		Poor condition and loss of hair	+
Liver disorders	-		Pregnancy and lactation	+
Nephrosis	-			
Obesity	-		Niacin	
Ulcer	+		Dermatitis	+
Underweight	+		Disturbances of central nervous system	+
			Gastro intestinal disorders	+
Calcium and Phosphorus			General muscular weakness	+
Dental defects	+		Loss of appetite	+
Certain diseases of the skeletal structure	+		Pellagra	+
Pregnancy	+		Soreness of mouth and tongue	+
Rickets	N			
			Ascorbic Acid	
Iron			Anemia	+
Pregnancy	+		Damaged heart conditions	+
Secondary anemia	N*		Decalcification of bones and teeth	+
			Hemorrhages of capillaries	+
Iodine			Lesions of gums	+
Goiter	+		Lowered resistance to infection	+
			Pregnancy and lactation	+
Vitamin D			Scurvy	+
Dental defects	+			
Certain diseases of the skeletal structure	+			
Lactation	+			
Pregnancy	+			
Rickets	+			
Certain skin disorders	+			
Vitamin A				
Dryness and scaliness of skin and mucous membrane	+			

*With medication

CHAPTER 4

ENVIRONMENTAL FACTORS THAT INFLUENCE THE EFFECTIVENESS OF THE DIET—PHYSICAL AND MENTAL

THE SCIENCE OF PLANNING THE DIET

In planning a diet it is always necessary first to consider the body requirements in terms of food. The body requirements and the computation of the kinds and amounts of food necessary to fulfill them have been described in detail (Parts I and II). The use of these data may be called the *science* of planning the diet.

THE ART OF PLANNING THE DIET

But more than science must enter into effective dietetic treatment, for the diet is planned for a human being who cannot be controlled like an animal under experimentation. The influence of personality traits and of a great variety of factors in family and community life must be considered and the adaptation of the diet to these factors may be called the *art* of planning the diet.

What is spoken of as a 'clinical picture' is not just a photograph of a man sick in bed; it is an impressionistic painting of the patient surrounded by his home, his work, his relations, his friends, his joys, sorrows, hopes and fears.¹

IDENTIFICATION OF THE PATIENT

To plan a dietetic regime that will be possible of fulfillment in the home environment it is essential to obtain, from records and from careful study of the patient, a mental picture of him against the background of his habits and attitudes, his desires and his necessities.

¹ Peabody, Francis, *Doctor and Patient*, p. 33. Macmillan Co., 1930.

The information received from the patient on admission to the outpatient department or in the office, and the data on the medical records will be helpful. The patient's name often carries certain implications pertaining to cultural and environmental backgrounds, nationality, and food habits and customs. The home address offers a clue to the nature of the facilities for the purchase, care and preparation of food, as well as to the conditions favorable to proper sleep, recreation and other health habits.

NUTRITIONAL HISTORY

The information obtained from the Nutritional History (Part I, Chapter 2, p. 8) will give much data concerning the physical environment and also concerning the patient's mental and emotional attitudes toward food which influence markedly the pattern of food behavior.

To assist the understanding of the intricate interrelationships of the environmental factors, physical and mental, that may affect the outcome of the diet, the chart on page 32 is given as a basis for study.

INTERRELATIONSHIP OF FOOD AND THE PHYSICAL ENVIRONMENT

Certain of these environmental factors affecting dietary habits will be discussed here, first in terms of their physical aspects. Later it will be shown how these correlate with mental attitudes toward food.

FACTORS OTHER THAN FOOD THAT INFLUENCE THE DIET

Identification of the patient	Name Address Religion Nationality Language Spoken Education Mental Capacity Occupation Income Expenditures Family—number adults children				
Home environment	Neighborhood	Type of living quarters	Number of rooms Floor How heated How lighted Passes Yard		
	Household facilities	Care and preparation of food	Stove—kind Sink Refrigeration Storage space Utensils	Bathing Care of hands Nails Teeth	Home { Tub portable or set Water how heated
					Community {
					Equipment { Wet wash Flat work Tub portable or set Washing machine Water how heated
	Personal hygiene	Cleanliness	Laundry {	Toilet {	Commercial {
					Home {
Daily regime	Household regime	Occupation { Industry Home School Other occupation	Bowel elimination Sleep and Rest {	Number in room Number in bed Ventilation Type of bed and bed clothing	Private or common Location Condition—light heat ventilation
Relationships—Family school occupational other relations	Mental Attitudes	Recreation Exercise Rest and sleep	Recreation {	Facilities in the home Facilities in the community	

The Income

The income controls the standard of living to so great an extent, with respect both to body needs and the satisfactions of life, that it must always be given due

consideration in relation to the diet. To judge the adequacy of an income, it is necessary, in food treatment as in social treatment, to know the number of people dependent upon it, the basic needs of each

individual and the requirements for fulfilling these needs in accordance with the standards of the individual or family concerned (Part I, Chapter 2)

The necessities of life, such as food, shelter, clothing, and savings, are closely interrelated in their demands upon the income, and it requires definite planning to keep the outlay for them in proper ratio. It is essential in dietetic treatment to be aware of the extent to which these demands, singly or in combination, may prevent the fulfillment of the body's need for sufficient food. Primary needs can not be satisfied when the income is below the minimum level of the cost of living. Under such conditions, one or more of these needs will inevitably fall below good health standards.

Food is usually the need that first suffers this restriction. It is true that in diets on all levels of income there are only a certain number of food groups from which to choose, but with the lower level income there are definite restrictions with respect to the kinds and amounts of foods within these groups that can be purchased, and the degree to which desires can be satisfied.

The diet planned at the minimum cost must be followed strictly in accordance with the specifications of the expert who plans it. In fact the diet of minimum cost requires able management and it takes a person of initiative and ability to carry it out successfully. One might call it a border line diet, with little margin for safety. The typical diets and menus

given in this book (Part IV) are what would be called "liberal," in terms of income, with respect to the amounts and kinds of foods they allow.

Shelter, the home, should supply suitable facilities and equipment for the care and preparation of food, for maintaining good habits of personal hygiene (including rest and sleep and cleanliness), for recreation, and for satisfying as nearly as possible the desire for wholesome living. The location of the home becomes a factor in relation to income when it entails outlay for lunches and transportation. With the low income, these expenses limit further the money that can be spent to fulfill food requirements. The paragraphs, "Food Within the Home," and "Food Outside the Home" (p. 34) consider further the interrelationship of food and shelter.

Clothing can be considered as the shelter or covering of the body, as the home shelters the family or individual, and thus it affects the physical health. The type of clothing needed varies with the age, sex, size, occupation and activity of the individual, as well as with climatic conditions. Again, the standard that is maintained with respect to health and taste in the matter of clothing influences the expenditure of the income sometimes to the neglect of food. But as "food is more nearly a fixed requirement," it is truly stated by one writer that the less the worker earns the greater the proportion of his income that must be spent for food, to the renouncement of all other desires. On the low income, it is difficult to obtain food for caloric requirements and in cold weather, sufficient coverings to maintain needful body heat.

Savings gives a sense of security, and this is desirable. However, unless the income is above that necessary to maintain standards of health, the savings may

¹ It is interesting to note in "Diet at Four Levels of Nutritive Content and Cost," *Stiebeling and Ward Circular No. 296* U. S. Dept. of Agriculture, that as the level of income is raised the outlay for milk, fruits, vegetables, meat, fish, poultry and eggs increases while that for bread, flour, cereals and legumes decreases. Your Meals and Your Money by Gove Hambridge which is an interpretation of the above circular contains a chart, p. 53 that illustrates graphically this trend in the economics of food consumption.

be carried at the expense of some of the necessities of life. "Not until they (food, shelter—including light and heat—clothing, and incidentals covering health and cleanliness) have been provided for should anything be set aside under the heading of savings or insurance."³

Nationality

Nationality, racial traditions and age old practices affecting the choice and preparation of food play a large part in determining the eating habits of the family and the individual. To the foreign born facing new and unaccustomed conditions on every hand, not the least difficult problem is that of obtaining sufficient and acceptable food. While many of their native foods can be procured in this country, and can be prepared and served in customary ways, on the other hand subtle but definite influences lead the foreign born gradually to adopt some of the food habits of the new environment. The younger generation, entering the life of the community through school and work, brings back into the home the habits and customs of neighbors and mates, and the family food habits become a fusion of those of the native country with those of the adopted country. All too frequently this makes for an inadequate diet. This is true especially of those who come to live in cities from villages and farm districts where they have always produced much of their own food. Many of these people are to be found in the low income group in this country. With the unwonted demands on their limited funds they naturally turn to the foods that are the cheapest and most filling—the cereal group—with the result that foods are not purchased in proper kinds and amounts for body needs (Table 4).

³ Taylor Maurice *The Social Cost of Industrial Insurance* Alfred A. Knopf, 1935

Food Within the Home

A lack of knowledge of ways of purchasing, storing, and preparing food, as well as of food values, conditions the feeding of the family. The ability of the homemaker to choose foods that are economical and yet meet the body needs, and to prepare them in an appetizing manner even with poor facilities, is a most influential factor in the cultivation of good food habits. The cost of fuel, the type and condition of the stove, and the number and kinds of cooking utensils that the family possesses may limit the number of foods that can be prepared at the same meal, as well as the methods of preparation. The means for refrigeration and for storage are other factors in determining the selection, conservation, and preparation of food. If sufficient money is not available, or if the wage earner and not the homemaker controls the purse and the purchase of food, or if there is not storage space, the homemaker cannot take advantage of sales, or practice the economy of buying in large quantities. Sometimes there is no place in the neighborhood where the housewife can buy the desired food economically, while buying in the more distant markets involves the expense of transportation and the carrying of burdensome amounts. Often medical treatment requires that the homemaker shall shop under conditions that will entail least physical strain.

Food Outside the Home

Some members of the family—as the child at school or the adult at work—must frequently eat away from the home. The adequacy of the meal that is carried from the home will again depend largely upon the ability of the homemaker to choose and prepare proper and appetizing food. Perhaps the meal is eaten in the restaurant and the responsibility will lie upon

the individual himself to select food with special thought for the fulfillment of body needs. The greater expense for meals eaten in the restaurant makes a wise choice of food difficult especially if the cost must be kept at the minimum, and the difficulty is more serious when the individual must eat all of his meals in the restaurant, and becomes complicated in deed when the choice of food must be governed by the requirements of the therapeutic diet.

Even when food is provided in kinds and amounts necessary to fulfill body needs, it cannot serve its purpose successfully unless habits of good personal hygiene are established by the patient to keep the body in fit physical condition.

Sleep and Rest

The quality of sleep and rest is greatly dependent upon the type of the home environment and the regime of the individual and the family. To ensure restful sleep there should be proper sleeping conditions,—comfortable beds with no crowding, clean and suitable bedclothing, proper temperature and ventilation, and the sleeping quarters so arranged that any member of the family who might need or wish to rest during the day or to retire early could do so without being disturbed.

Rest reduces the energy requirement of the body. It is an important factor, therefore, in the dietetic treatment of the underweight. Fatigue induced by over activity, or lack of proper sleep and rest, may affect the appetite so unfavorably that the food intake will be insufficient for body needs.

Body Cleanliness

While the relation between body cleanliness and food for body needs may seem slight, yet in our modern culture, cleanliness of teeth, hands and nails is

associated with food habits. Principles of sanitation and of preventive medicine are also here involved, with their inferences with respect to the relation between cleanliness and communicable disease. To meet the needs of cleanliness as a sanitary measure, adequate facilities should be available in the home, the school, in industry, and in the community at large. The school and community often assume the responsibility of supplying facilities lacking under poor housing conditions, as in the case of the public bath.

Laundry

The cost of supplies for both body cleanliness and laundry must be accounted a definite charge against the income, and estimated in balancing expenditures. Here again care must be taken lest the money necessary for food be encroached upon.

Adequate equipment and materials for laundry or "clean clothes" will also depend largely on the type of shelter or home. Facilities will range from the portable tub and no running water, demanding a heavy output of energy, to the modern set tub with running water, and even the mechanical washing machine and instantaneous hot water. These details greatly influence the demands on the energy of the homemaker. A source of release for the woman of inadequate equipment is the "wet wash" or "flat work" done by the commercial laundry. This again is often a necessary prescription for the patient whose physical condition does not permit severe activity.

Bowel Elimination

Proper habits of bowel elimination are related not only to the kinds and amounts of the food and the fluid intake but also to such factors as the daily regime and the

toilet facilities available in the home and the school or the place of occupation. The toilet that is poorly ventilated, badly lighted, ill heated, in an unfavorable location and inadequate for the number using it, is not conducive to good habits, nor are the hurried breakfast, the morning rush, or conditions and regulations often met in the day's occupation. The factor of time is important. Establishing the habit of a regular bowel movement requires that sufficient time be allowed for it definitely at a period in the day's regime when there need be no feeling of haste.

The Occupation and the Daily Regime

The hours of work, whether at school, or in the home, or in industry, will affect the diet by determining the times for meals, as well as the hours of sleep and the amount of leisure for recreation and other activities. If the hours that a member of the family must follow, with respect to meal time, do not coincide with those of the rest of the household, some adjustment must be made in the home to guard against forming faulty food habits. In school or industry, the facilities that exist for eating,—such as a dining room or equipment for heating food brought from home,—and the amount of time allowed, are factors in determining the type of lunch the individual will have, where and how much he will eat, and how rapidly and with what satisfaction. For the patient on a therapeutic diet these problems are accentuated, and it is necessary to plan carefully for the meals eaten away from home. The degree of activity that the occupation requires will determine the energy requirement, which must be fulfilled by food.

Recreation

Physical fitness for play depends largely upon a proper food intake. The desire

for food is dependent in part upon a sense of well being, which in turn is influenced by the maintenance of a proper balance between activity and rest. Recreation should be advantageous to health, stimulating the desire for food, but when it leads to overexcitability or overactivity, it is harmful. Fatigue from such causes must be avoided, especially in the child, lest it affect the appetite and the body's utilization of food. Further, there must be a proper balance between the physical activities of recreation and the food intake to maintain average body weight. Food taken in larger amounts than are required for the body's activities will lead to overweight, while activity with less food than the body requires leads to underweight.

INTERRELATIONSHIP OF FOOD AND MENTAL ATTITUDES

Various environmental factors have been discussed in terms of the physical aspects of their relation to food. But the "impressionistic painting" which Dr. Peabody has urged involves also an understanding of the patient in terms of his mental and emotional attitudes toward food. "Not only must the basal physiological mechanism of the individual be thoroughly investigated, in addition all other factors involved in the personality must be reviewed, all relevant factors in the life situation must be scrutinized and evaluated."⁴

It is especially important to understand the mental life of the child and to help him develop right attitudes toward food, since it has been demonstrated that mental as well as physical habits are developed in childhood that affect the health status throughout the entire span of life.

⁴ Campbell, Charles Macfie, *Human Personality and the Environment*, p. 5, Macmillan Co., 1934.

It would be simple if the deviation from the normal in food habits or in personal hygiene could be traced to a single causal factor. Rarely can this be done. Behavior in relation to food is often a matter of interplay between the physical and emotional life. The motives may be hidden in a condition or a combination of circumstances seemingly unrelated or only indirectly related to food and consciously or unconsciously guarded by defensive attitudes that are difficult to penetrate.

Eliot stated (1933)* that she could find no report of experimental or descriptive data in respect to the relationship between eating habits and personality traits. There is evidence of increasing interest in this subject and many studies made by graduate students are now available. However, there is need of much further research, and meanwhile the principles of psychology and psychiatry and the various other sciences basic in the field of mental hygiene must be relied upon for help in interpreting food in its significant social implications or in estimating rightly the influence of mental attitudes upon food habits.

An understanding and appreciation of mental attitudes and social settings, when developing a dietary plan with the patient, will make for more intelligent cooperation with others who are participating in his treatment. There must, of course be a differentiation between cases in which a few suggestions to the patient will solve the problem and those where a penetrating and systematic analysis of personality must be undertaken.

The patient himself must be led to un-

derstand the problems that his situation presents, and the significance of his attitude toward food, to the end of developing in himself a sense of responsibility toward the solution of his difficulties, and a desire to follow a plan for an adequate diet.

The Income and the Necessaries of Life in Relation to Mental Attitudes

When an inadequate income or loss of employment entails living conditions that are unsatisfactory, limits the outlay for food, for the home and household facilities and for clothing, and threatens the sense of security that the possession of savings gives,—these limitations in the physical environment often produce unhappy mental and emotional reactions. Harassed with fear and worry over the future for himself and his family, frustrated in many ways, resentful, discouraged to the point of indifference, with loss of faith in the possibility of a better future, the patient can make but little effort to help himself in the plan for dietetic treatment. "The stress of a psychological situation influences emotions, alters the direction of thought, modifies the code of values." "Why make a plan for me?" the patient will say. "Where am I to get the food? What is the use of planning a diet when there is no money to pay for food?"

The individual of independent spirit strives to maintain as long as possible the standards of living that are visible to the world,—those related to place of residence and type of clothing. Only he and his family need know what food they are consuming and whether in adequate quantities. From a feeling of pride or shame the child or adult may describe his diet not in terms of what he is eating but what

* Eliot, Abigail. *Eating Habits in Relation to Personality Development of Two and Three Year Old Children. A Study of 69 Children in Two Nursery Schools.* Genetic Psychology Monographs Vol. XIII No. 5. Clark University, Worcester, Mass., May 1933.

* Campbell, Charles Macfie. *Human Personality and the Environment* p. 5. Macmillan Co., 1934.

he thinks his food habits should be, or with a hostility born of sensitiveness he may resent questions concerning his diet and begrudge giving information. Such attitudes impede dietetic treatment, which cannot become effective until the patient can assume a more normal mental state and is willing to discuss his situation frankly.

The young people of the family who go out to work acquire a feeling of independence because of the financial contribution they make to the household. This may lead to greater cooperation in achieving and maintaining higher dietary standards with which the parents are in sympathy, but it may be a source of constant disturbance and dissension concerning money and ways of living. The independent young girl often arouses conflicts in the family concerning her diet, when in her desire to maintain a certain weight she persists in food practices harmful to health.

Nationality

Similarly racial customs and religious laws pertaining to food tend to exert an important influence on the emotional life. There is a constant feeling of discontent in the elders, for example, when the home is not near the markets from which accustomed foods can be obtained. Within the home, conflicts arise when the young people become critical or hostile and irreverent toward food customs cherished by their elders. Sensitive concerning accustomed food habits and fearful that they will be misunderstood, a patient often becomes unhappily self-conscious when describing his food intake, and may even deny certain food usages characteristic of his race. In planning the diet with the patient who prefers his food prepared in the traditional ways, care must be taken to adhere to the accustomed

foods or methods of preparation in order to avoid arousing disapproval, distrust or resentment.

The use of certain foods is associated with religious and historical holidays, and the patient becomes unhappy at the thought of being restricted in his choice of food on such occasions. This attitude changes to one of pleasure and interest in his diet when it is demonstrated by a display of foods that he need not feel set apart from his family at such times but can share in the feast without exceeding his diet (Part I, Chapter V).

In the social life without the home, food customs often cause unfavorable emotional reactions. The patient may not like to eat with others than his own group, or out of loyalty to religious laws he may feel that he cannot eat where these are not observed. He may be reluctant to display a lunch containing foods that are distinctive of his race or religion to a group whose food customs are different from his own. A feeling of timidity, insecurity or resentment may be aroused in him, as in the case of other economic or social differences, and in self-defence he purchases a lunch that conforms to those of his companions, although it may be less desirable and more expensive than he can afford. His choice of place for spending vacation periods may be limited by the same considerations.

Language difficulties due to unfamiliarity with the language of the adopted country limit the patient's contacts and his understanding of practices other than his own. These restrictions give rise to feelings of inferiority or frustration which often make for conflict in the family life. In the clinic, when the patient does not understand directions and perhaps cannot make himself articulate, he again feels that he is being limited in the participation of what is of vital concern to him.

It will be shown how, in the interests of developing a favorable attitude toward the diet and dietary directions, the patient is helped to overcome these difficulties of language, with their effects of confusion, antagonism, futility, and the discouraging sense of being misunderstood (Part I, Chapter V)

Sleep and Rest

The quality of sleep and rest affect one's mental and emotional reactions to a considerable degree. Often, it is not a dislike of food that is the disturbing factor in the behavior of the child who will not eat his meal, but irritability due to over activity or insufficient rest, or both, for these are among the primary causes of lack of appetite in both child and adult.

Body Cleanliness

Even though body cleanliness may be no more than an aesthetic consideration, it induces the feeling of well being which in turn, is reflected in the enjoyment of food.

With wise guidance, adaptation of facilities and the establishment of a daily regime the child can be led to develop proper habits of cleanliness as a matter of routine and to practice them contentedly and with pride. But when the mother or adult resorts to nagging, struggle or punishment in training the child to habits of cleanliness, the unhappy mental state produced in the child may affect the appetite unfavorably, and is very likely to do so if the unpleasant situation occurs just before a meal time. Moreover, in developing habits of cleanliness it is most unwise to use food as a means of discipline and so to invest it with unhappy associations.

Bowel Elimination

Because of social taboos, an atmosphere of shame and false modesty has been

created with respect to the processes of urination and bowel elimination. In taking a nutritional history it usually becomes evident that in most family circles the correct names for the body parts and their functions are avoided, and names with little or no meaning are substituted to disguise reference to them. This retards a proper understanding of these processes. False standards are often created, and emotional disturbances are associated with the organs of excretion. The patient develops an attitude of reserve, and even of shame, with regard to them, which is often inhibiting to the proper functioning of the body. The dietary can hardly overcome these conditions.

The Occupation and the Daily Regime

A lack of interest in or of a desire to follow a suggested dietary procedure or hygienic regime is often due to unhappiness in conditions of work. An unpleasant situation faces the child at school or the worker at his trade, and mental or emotional disturbances are created that may manifest themselves in diverse undesirable patterns of behavior. Emotional distress may be expressed overtly, seemingly without relation to cause, in the form of food dislikes. Often a food idiosyncrasy, an unwholesome attitude toward food can be traced to such deep lying causes. They may represent an escape from an intolerable life situation. And when these attitudes are carried into the home they may have a disturbing effect upon family food habits. It is important, then, to know whether the child is reasonably successful and happy in his school life, in his work and in his friendships, whether the worker's position holds a promise for future advancement provides pleasant human relationships and compensation adequate to

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maintain positive health, mental as well as physical.

The nervous breakdown of the housewife is likely to be due to maladjustment resulting from a sense of inferiority with regard to her work, which is often expressed in overanxiety, worry, discontent, imaginary illnesses, fear of disease, or a food dislike. She may become indifferent to good dietary standards to the point of being indulgent to herself and her family, and cease to set an example with respect to an intelligent dietetic and hygienic regime.

The child's life is regimented to a great extent by food. The infant becomes aware, through hunger pangs, of his need of food, and derives contentment when that is satisfied. The various factors that have already been considered as a part of the day's regime,—activity, body cleanliness,—all affect the child's attitude toward food. The healthy, happy child, with good health habits, comes to his meal with a zest for food, and partakes of it in the same spirit in which he carries on the other activities of his day's work and play. These desirable behavior patterns with respect to food must be carefully cultivated from earliest childhood, not only to satisfy nutritional needs but as a foundation for right attitudes towards food in later life.

But there is another picture, well known, of the child who becomes resistant and resentful at the call to stop his play and "wash up" in preparation for meal time, or the child who indulges in food idiosyncrasies, and dandles in eating perhaps daydreaming, making of the meal time a period when he can profitably act the dictator, or using it as a device for

securing undue attention. Under such conditions meal time awakens undesirable attitudes that provoke irritability, anger and unhappiness, with ill effects not only for the child himself but for the rest of the family.

The meal time should be a means of developing a healthful attitude toward food. Here, as in other situations, the child looks to the adult for an example of behavior as well as for encouragement, and the adult will often find in the child's attitude toward food a reflection of his own. Modern health education is making of the school lunch, from the nursery school onward, a means for cultivating good food habits in an atmosphere of happiness and in a spirit of coöperation on the part of both child and adult.

Recreation

For the adult and the child, recreation and play contribute to the feeling of well being, and there is usually greatest enjoyment of food after zestful activity. But play or recreation may be a source of disappointment and unhappiness, due perhaps to lack of skill or to physical disability. Often feelings of shame, jealousy, and timidity or insecurity as to status in the group are engendered, extending perhaps to underestimation of the ability for accomplishment in other fields and leading to withdrawal from social contacts. Under these conditions undesirable personality traits develop that may become manifest in apparent inability to eat, or in refusal of food as a form of reprisal.

Today there is happily a healthier tendency to enter into group play and recreation with the purpose of correcting or compensating for some deficiency, either physical or mental, and through new interests and associations to overcome self

* Stern, Frances. *The Nutritionist Looks at Mental Hygiene*. *Mental Hygiene*, Volume XIV No 1 January 1930.

indulgence and whims, including food idiosyncrasies, and to pursue a normal life including a normal diet

In the use of the Nutritional History (Part I, Chapter 2), every-day situations such as these that have been suggested are scrutinized carefully. Commonly looked upon as routine matters they are found to have definite relationship to food behavior. Many other such factors than are referred to here would suggest themselves in the study of patients individually.

Food is an integral part of the patient's life. The pattern of his food behavior, good or poor, favorable or unfavorable to dietetic treatment, is the product of his background—his environment, training and reaction to experience. Clearly, knowledge of his physical needs and of the foods that fulfill them is not sufficient, it is of greatest importance to understand the pattern of his food behavior in the light of social settings. Always the distinctive food habit will be found to have a much deeper significance than appears on the surface. It is symptomatic, conditioned by life situations. When the Nutritional History records attitudes of resistance, resentment, or frustration, their cause must be found before they can be overcome. It should be known for what purpose the patient is using food other than to satisfy normal needs and desires.

For those who are engaged in the study and interpretation of human personality, herein lies opportunity to supply scientific data. A closer correlation of the observations and findings of the various groups having a common interest in these studies should yield much of benefit in the treatment of the patient. In applied dietetics this material would be of increasing importance.

SUMMARY OF THE FACTORS OTHER THAN FOOD THAT INFLUENCE A DIET

Income and Expenditure The income controls the standard of living to so great an extent, that it must always be given due consideration in relation to the diet. Because of the close inter-relationship of the necessities of life, it is essential to be aware of other demands which so often prevent the fulfillment of the body's needs for food.

Nationality Racial stock, traditions and age old practices affecting the choice and preparation of food play a large part in determining the eating habits of the family and the individual.

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Food Within and Outside the Home A lack of knowledge of ways of purchasing, storing and preparing food, and of food values conditions the feeding of the family. The adequacy of the meal which is carried from the home or eaten in the restaurant will also depend on the thought given to the fulfillment of the body needs for the day as well as the amount of the income.

Sleep and Rest Insufficient rest or sleep causes conditions such as fatigue and irritability that affect the appetite unfavorably.

Body Cleanliness Body cleanliness is associated with good food habits and is important in the practice of preventive medicine.

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Sleep and Rest Insufficient rest or sleep causes conditions such as fatigue and irritability that affect the appetite unfavorably.

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Interrelationship of Food and Mental Attitude The pattern of food habits is usually significant of certain mental attitudes influenced by life's situations which must be understood and taken into consideration when developing a dietary plan

CHAPTER 5

THE EDUCATION OF THE PATIENT ON THE NORMAL DIET

The fulfillment of the diet plan depends to a great extent upon the successful education of the patient in the principles underlying his diet. These must be presented to him clearly and simply.

GAINING THE CONFIDENCE AND CO-OPERATION OF THE PATIENT

To obtain the comprehensive knowledge of the patient that is essential in teaching him in relation to his needs, it is important to have his confidence and coöperation, and these he will give in response to a kindly approach and sympathetic interest. Helped further by an understanding of human relationships, one should be able, in taking the nutritional history (Part I, Chapter 2), to form the desired picture of the patient as a whole—his personality and intelligence level, his daily régime and environmental conditions.

In discussing with him his special interests and leading him to talk freely of his daily life, friends and family, much helpful information can be secured without direct questioning. One should be able to recognize the presence of inhibitions or disguised motives, as when the patient wishes to cover poverty or other unsatisfactory living conditions, for the information upon which the diet based must be accurate or it will obstruct correct dietetic treatment.

Furthermore the surroundings in which treatment is given will affect the patient's attitude. Posters and pictures illustrating fruits, vegetables, the grains, or a principle of hygiene, by possessing artistic merit enhance interest in and the desirability of the health

practices which they suggest. The Russian samovar, the coffee pot of the Near East countries, the Italian pottery and other household objects, of artistic as well as of cultural value, are evidence to the foreign born patient that the crafts and customs of his native country are appreciated. Pictures and other objects of interest can be chosen that besides being decorative will have definite value both for direct and indirect teaching.

A room that is attractively decorated, and which gives opportunity for a private, unhurried conference in a quiet, friendly atmosphere will induce the patient to speak freely and frankly. These desirable conditions can be provided in office and clinic, and will have the effect of stimulating the patient to greater coöperation in constructing the plan of his dietetic treatment.

AROUSING AND SUSTAINING INTEREST

The patient must acquire the information that will enable him to carry out his diet at home intelligently and faithfully. Moreover, he must be actuated to apply the knowledge he gains to the formation of desirable habits. And on return visits, praise for progress, and encouragement in overcoming his difficulties, should help to sustain his interest and give him inspiration for successful accomplishment.

In the following pages methods and means are presented for teaching the patient. The extent and manner of using this material will depend upon the patient's intelligence level, his actual knowledge, what it is desired to accom-

plish in his behalf and the time that can be devoted to his instruction. The teaching procedure described here follows logically the points considered in Part I, Chapter 2. However a different method does not preclude the use of the materials or suggestions given herein.

APPROACH TO THE PATIENT

The *method of approach* to the patient will be determined by what is learned in conference with him.

The content of necessary knowledge should be developed slowly with the average patient, to be certain that he is learning and applying the information gained. So far as possible the patient's own knowledge and experience should be used, because it will give him a feeling of security to start from the known and gradually proceed to the unknown. The process of his education will often extend over many visits, the points made being continually reemphasized and new ones advanced.

Language difficulties, as with the patient who is foreign born, call for special aids in teaching, such as food models or food pictures, to help visualize the foods that may be used. Books contain helpful pictures, and magazines and catalogs will furnish illustrations that can be pasted into a notebook for convenient reference. Such illustrations help the patient to identify foods which, though familiar to him, he does not recognize by their names in the unknown language.

When it is necessary to make use of an interpreter it is especially important to visualize directions as far as possible, so that the patient may understand them, at least in part, and not have to depend wholly on the interpreter.

The child and the mother should, if possible, make the first visit together when the child is the patient, since the

child is dependent on the home to supply his needs. The conference with them should yield insight into the home conditions, the relation between mother and child and the child's relations to other members of the family, upon which so much of the ultimate success of the diet plan depends. Both mother and child should understand the principle underlying the diet, and have a common interest, a unity of purpose, in fulfilling the requirements. A spirit of domination on the part of either is to be deprecated. Lest the child become introspective he should be helped to feel that he can participate as usual in the general family life.

Methods of teaching the child should be adapted to his intelligence level. Illustrative materials—pictures, games, stories, handwork, experiments and exhibits that utilize the child's interests and experience—are of great value. By these means, and in words that he can understand, the child can be taught the body's needs, the food constituents and how food serves the body,—just as the adult is taught them in more advanced terminology. Helpful methods of teaching these principles have been evolved, with illustrative materials, in a series of lessons for children published under the title *How to Teach Nutrition to Children*.¹

Other members of the household upon whom the patient may be dependent for the preparation of his food should also be given directions at first hand rather than only through explanation by the patient.

The patient is often asked to keep a record of what he eats, and it is desirable that he should have a special booklet to serve as a food diary (p. 45). He will

¹ Pfaffmann and Stern, *How to Teach Nutrition to Children*. M. Barrows and Co., New York, 1942.

assign a greater importance to the diet when recorded in such form and will feel a keener desire to cooperate. While a record of this type will not be definite enough for exact computation of the diet, it will show the trend of the patient's

and vitamin D. The need of food for body building is illustrated by pictures of the skeleton with the foods that supply calcium, the circulatory system with the foods that supply iron, and the muscular system with the foods that supply protein.

THE BOSTON DISPENSARY FOOD CLINIC

What I Eat

Name _____

Address _____

Date _____

TUESDAY

Health
Habits

Breakfast _____

Noon Meal _____

Evening Meal _____

Extras _____

THE FOOD DIARY (Actual dimensions 5" x 3½")

eating habits, and whether he understands his diet and is carrying it out.

CONFERENCE WITH THE PATIENT

The relation of food to the body is developed with the patient as the guiding consideration in planning and carrying out a diet. The patient is led to understand that food and the body are composed of like materials, and that the body builds itself by transference to itself of like materials from food. He learns the terms carbohydrate, protein, fat, calcium, phosphorus, iron, vitamin A, thiamine, riboflavin, niacin, ascorbic acid,

The need of food to supply energy for activity is interpreted by pictures showing the body at work and play, and the foods that supply carbohydrate and fat. Likewise a picture showing the healthy, vigorous body and the foods that supply the various vitamins illustrates the need of selecting foods that promote health, vigor, and growth (p. 16).

Such pictures or charts help the patient to realize also that certain foods—milk, for example—serve several body needs. He will see this more clearly if the foods are arranged in the same order in each picture rather than in the order of their

PROTEIN

For growth muscle and repair

**FAT**

For energy to work and play

**CARBOHYDRATE**STARCHES SUGARS
For energy in work and play**CALCIUM**

For bones and teeth

**VITAMINS**

For growth health and vigor

**IRON**

For blood

**THE DAILY REQUIREMENTS OF THE BODY — ADULT AND CHILD**

1 ounce=30 g. ams—1 milligram=1/1000 gram—1 microgram=1/1000 milligram—1 kilogram=1000 grams (2.2 lbs)

	Water Gr. per day	Food Gr. per day	Calories Kilocalories	Calcium Gr. per day	Iron mg.	Vitamin A IU	Vitamin B ₁ mg.	Vitamin C mg.	Vitamin D IU	Vitamin E mg.	Vitamin K mg.	Vitamin P mg.	Vitamin Q mg.	Vitamin R mg.	Vitamin S mg.	Vitamin T mg.	Vitamin U mg.	Vitamin V mg.	Vitamin W mg.	Vitamin X mg.	Vitamin Y mg.	Vitamin Z mg.
ADULTS Male	70	135	375	8	12	5000	1800	2700	18	75	—	—	—	—	—	—	—	—	—	—	—	—
Female	60	115	312	8	12	5000	1500	2250	15	70	—	—	—	—	—	—	—	—	—	—	—	—
Older	85	101	312	15	15	4000	1800	2500	18	100	—	—	—	—	—	—	—	—	—	—	—	—
Young	100	122	375	20	15	8000	2300	3000	23	150	—	—	—	—	—	—	—	—	—	—	—	—
CHILDREN																						
Under 1 yr	40	49	150	10	6	1500	400	600	4	50	—	—	—	—	—	—	—	—	—	—	—	—
1-3 yr	50	66	200	10	7	2000	600	900	6	65	—	—	—	—	—	—	—	—	—	—	—	—
4-6 years	60	84	250	10	10	2500	800	1200	8	80	—	—	—	—	—	—	—	—	—	—	—	—
7-9 yr	70	107	312	10	12	4500	1200	1800	12	100	—	—	—	—	—	—	—	—	—	—	—	—
10-12 yr	80	120	350	12	15	5000	1400	2000	14	120	—	—	—	—	—	—	—	—	—	—	—	—
13-15 yr	90	140	400	14	15	5000	1600	2200	16	140	—	—	—	—	—	—	—	—	—	—	—	—
16-20 yr	100	166	475	14	15	6000	2000	3000	20	160	—	—	—	—	—	—	—	—	—	—	—	—

Adapted from Food and Nutrition Board of the National Research Council

FOOD CONSTITUENTS**AMOUNTS PER DAY PER KILOGRAM OF BODY WEIGHT**

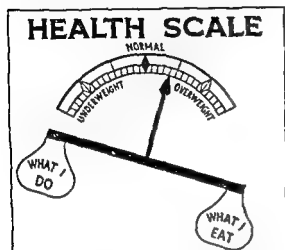
	ADULT	CHILD
Protein	1 1/2 to 2 g.	2 to 3 g.
Fat	1 to 2 g.	2 to 3 g.
Carb. hydr.	4 to 6 g.	6 to 10 g.

FEED YOUR BODY TO PROTECT YOUR HEALTH

Notice the relation between the body and food, the same substances are in both

relative values as sources of the various food constituents (See illustration, p 46)

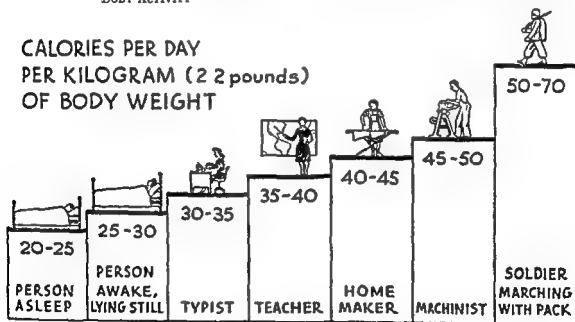
The balance between the food intake and body needs for activity is demonstrated



THE BALANCE BETWEEN THE FOOD INTAKE AND BODY ACTIVITY

satisfy the greater energy requirement or the body will be forced to use its own substance, and on the other hand, that if the food intake is greater than is required for the energy output, the excess will be stored in the body. Thus relationship may be illustrated by a picture or a drawing of a balance showing on one side "What I Do," representing the body's activity and on the other side, "What I Eat," representing the foods to supply the needed energy (p 47). A drawing of individuals engaged in graded types of activity—lying down, sitting, walking, running, at play, at work—and placed on ascending steps will make clear the increase in expenditure of energy (p 47).

The choice of foods to fulfill body needs requires that the patient shall be able to



ENERGY OUTPUT CHANGES DUE TO INCREASING MUSCULAR ACTIVITIES

The patient is led to see that a certain balance must be maintained between the food required to fulfill the body's energy needs and the food intake. He sees that when the activity of the body is increased, the food intake must be increased to

evaluate foods as to their various contributions to the body.

The protective diet, which has been described (Part I, Chapter 2), may be used as the basis for teaching the patient the foods that he should choose daily in

PROTEIN

For growth, muscle and repair

**FAT**

For energy to work and play

**CARBOHYDRATE**STARCHES-SUGARS
For energy to work and play**CALCIUM**

For bones and teeth

**VITAMINS**

For growth health and vigor

**IRON**

For blood

**THE DAILY REQUIREMENTS OF THE BODY — ADULT AND CHILD***

1 ounce=30 grams—1 milligram=1/1000 gram—1 microgram=1/1000 milligram—1 kilogram=1000 grams (2.2 lbs.)

	P. mol. g. mo.	C. mol. g. mo.	Carb. diet. mg.	Protein for mg.	Fe. mg. g. mo.	Ca. mg. g. mo.	Phos. mg. g. mo.	Starches Sugar mg.	Fat mg. g. mo.	Ascorbic acid mg.	Iron mg.
ADULTS											
Male 1750 g. d. or 70 k. leg. mo.	70	125	275	8	12	5000	1800	2700	18	75	—
Female 1150 g. d. or 50 k. leg. mo.	60	111	212	8	12	5000	1500	2250	15	70	—
P. 100	85	101	312	15	15	6000	1800	2300	18	100	400-450
L. 100	100	122	375	20	15	8000	2300	3000	23	150	400-500
CHILDREN											
U. 1 y.	40	49	150	10	6	1300	400	600	4	20	—
1 1/2 y.	50	66	200	10	7	2000	600	900	6	33	—
4 1/2 y.	60	84	250	10	8	2500	800	1200	8	50	—
7 1/2 y.	70	107	312	10	10	3500	1000	1500	10	60	—
10 1/2 y.	80	120	350	13	12	4500	1200	1800	12	75	—
TEEN AGES											
15 1/2 y.	75	100	300	10	12	5000	1400	2000	14	80	—
16 1/2 y.	85	116	400	14	15	5000	1600	2400	16	90	—
BOYS											
11 1/2 y.	85	116	400	14	15	5000	1600	2400	16	90	—
13 1/2 y.	100	144	475	14	15	6000	2000	3000	20	100	—

Adapted from the Food and Nutrition Board of the National Research Council

FOOD CONSTITUENTS**AMOUNTS PER DAY PER KILOGRAM OF BODY WEIGHT**

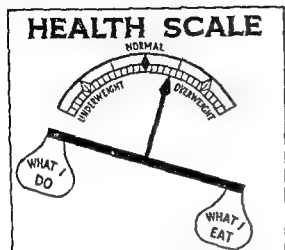
	ADULT	CHILD
P. 100	1/2 to 3/4 g. mo.	2 1/4 to 3 g. mo.
Fat 100	1 to 2 g. mo.	2 1/4 to 3 g. mo.
Ca. 500	4 to 6 g. mo.	6 to 10 g. mo.

FEED YOUR BODY TO PROTECT YOUR HEALTH

Notice the relation between the body and food, the same substances are in both

relative values as sources of the various food constituents (See illustration, p 46)

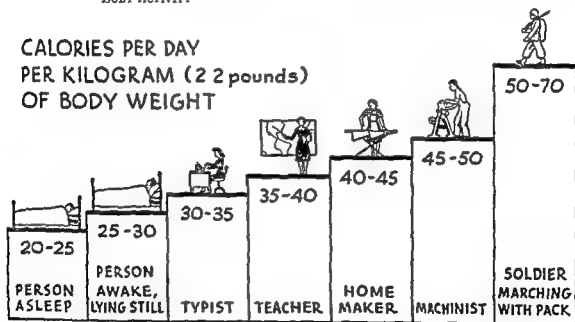
The balance between the food intake and body needs for activity is demonstrated



THE BALANCE BETWEEN THE FOOD INTAKE AND BODY ACTIVITY

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For growth muscle and repair



For energy to work and play



For energy to work and play



For bones and teeth



For growth, health and vigor



For blood



1 ounce = 30 grams = 1 milligram = 1/1000 gram = 1 microgram = 1/1000 milligram = 1 kilogram = 1000 grams (2-2 1b)

	non- users	grams	Carbohydrate grams	C. units per no	fat gm	ash g	T. caloric in no	K. cal in no	protein grams	protein calgrams	total fat calgrams	C
ADULTS Male p. Act 75 klog mo	70	135	375	8	12	5000	1800	2700	18	75	—	—
W m 1134 p d 1 60 klog mo	60	111	312	8	12	5000	1500	2200	15	75	—	—
W m 1134 p d 1 60 klog mo	85	101	312	15	15	6000	1800	2500	18	100	400	—
Lactose	100	122	375	20	15	8000	2300	3000	23	150	400	—
CHILDREN												
U 4 y				10	6	1500	400	600	4	30	400	—
8 3 y m	40	49	150	10	7	2000	600	900	6	35	—	—
4 6 y m	50	66	200	10	8	2500	800	1200	8	50	—	—
7 9 y m	60	84	250	10	10	3500	1000	1600	10	40	—	—
10 12 y	70	107	312	10	12	4500	1200	1800	12	75	—	—
GIRLS												
13 15 yr m	80	120	350	13	15	5000	1400	2000	14	80	—	—
16 20 yr m	75	100	300	10	15	5000	1200	1700	12	80	—	—
BOYS												
12 18 yr m	85	240	400	14	15	5000	1600	2400	16	90	—	—
15 20 yr m	100	166	425	14	15	6000	2000	3000	20	100	—	—

Adopted by the National Association of Public Health Administrators, 1945, and by the National Research Council

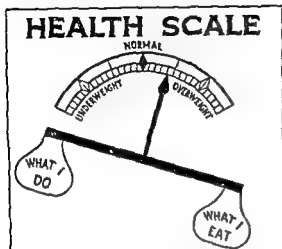
FOOD CONSTITUENTS	AMOUNTS PER DAY PER KILOGRAM OF BODY WEIGHT		
	ADULT		CHILD
	$\frac{1}{2}$ to 1	gram	
Protein	1 to 2	g	2 to 3 g
Fat	4 to 6	g	2 to 3 g
Carbohydrate	4 to 6	g	6 to 10 g

FEED YOUR BODY TO PROTECT YOUR HEALTH

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The balance between the food intake and body needs for activity is demonstrated

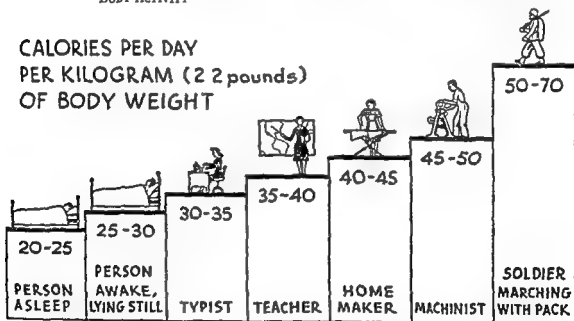


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The choice of foods to fulfill body needs requires that the patient shall be able to

CALORIES PER DAY PER KILOGRAM (2 2 pounds) OF BODY WEIGHT



ENERGY OUTPUT CHANGES DUE TO INCREASING MUSCULAR ACTIVITIES

The patient is led to see that a certain balance must be maintained between the food required to fulfill the body's energy needs and the food intake. He sees that when the activity of the body is increased, the food intake must be increased to

evaluate foods as to their various contributions to the body.

The protective diet, which has been described (Part I, Chapter 2), may be used as the basis for teaching the patient the foods that he should choose daily in



MILK

1 GLASS OF MILK GIVES

Protein (mpl)	1	grows in milk	d p	8 g m
Fat	1	grows in milk	d p	10 g m
Carbohydrate	1	grows in milk	d p	1 g m
Calcium	1	bone	d h	53 g m
Iron	1	healthy blood		5 mg m
Vitamin A	1	1000 I.U.		461 I.U.
Vitamin B	1	1000 I.U.		125 I.U.
Vitamin C	1	1000 I.U.		523 I.U.
Niacin	1	1000 I.U.		2 mg m



CHEESE

1 OUNCE OF AMERICAN CHEESE GIVES

Protein (mpl)	1	grows in milk	d p	7 g m
Fat	1	grows in milk	d p	10 g m
Calcium	1	bone	d h	279 g m
Iron	1	healthy blood		3 mg m
Vitamin A	1	1000 I.U.		450 I.U.
Vitamin B	1	1000 I.U.		165 I.U.
Vitamin C	1	1000 I.U.		26 mg m
Niacin	1	1000 I.U.		2 mg m



CHEESE

1 OUNCE OF COTTAGE CHEESE GIVES

Protein (mpl)	1	grows in milk	d p	4 g m
Fat	1	grows in milk	d p	5 g m
Calcium	1	bone	d h	347 g m
Iron	1	healthy blood		3 mg m
Vitamin A	1	1000 I.U.		531 I.U.
Vitamin B	1	1000 I.U.		26 mg m
Vitamin C	1	1000 I.U.		26 mg m
Niacin	1	1000 I.U.		26 mg m



EGG

1 EGG GIVES

Protein (mpl)	1	grows in milk	d p	7 g m
Fat	1	grows in milk	d p	10 g m
Calcium	1	bone	d h	53 g m
Iron	1	healthy blood		5 mg m
Vitamin A	1	1000 I.U.		500 I.U.
Vitamin B	1	1000 I.U.		125 I.U.
Vitamin C	1	1000 I.U.		523 I.U.
Niacin	1	1000 I.U.		2 mg m



MEAT

4 OUNCES OF MEAT GIVES ABOUT

Protein (mpl)	1	grows in milk	d p	20 g m
Fat	1	grows in milk	d p	26 g m
Calcium	1	bone	d h	932 g m
Iron	1	healthy blood		130 mg m
Vitamin A	1	1000 I.U.		2400 I.U.
Vitamin B	1	1000 I.U.		944 I.U.
Vitamin C	1	1000 I.U.		944 I.U.
Niacin	1	1000 I.U.		944 I.U.



BUTTER

3 TEASPOONS OF BUTTER FORTIFIED OLEOMARGARINE GIVES ABOUT

Protein (mpl)	1	grows in milk	d p	12 g m
Fat	1	grows in milk	d p	405 I.U.
Calcium	1	bone	d h	405 I.U.
Iron	1	healthy blood		405 I.U.
Vitamin A	1	1000 I.U.		405 I.U.
Vitamin B	1	1000 I.U.		405 I.U.
Vitamin C	1	1000 I.U.		405 I.U.
Niacin	1	1000 I.U.		405 I.U.



CREAM

1 CUP LIGHT CREAM GIVES

Protein (mpl)	1	grows in milk	d p	4 g m
Fat	1	grows in milk	d p	26 g m
Calcium	1	bone	d h	112 g m
Iron	1	healthy blood		2 mg m
Vitamin A	1	1000 I.U.		1416 I.U.
Vitamin B	1	1000 I.U.		100 mg m
Vitamin C	1	1000 I.U.		200 mg m
Niacin	1	1000 I.U.		200 mg m



FATS—Other Sources

6 TEASPOONS OF THESE FATS GIVE ABOUT

Protein (mpl)	1	grows in milk	d p	15 g m
Fat	1	grows in milk	d p	15 g m
Calcium	1	bone	d h	15 g m
Iron	1	healthy blood		15 g m
Vitamin A	1	1000 I.U.		15 g m
Vitamin B	1	1000 I.U.		15 g m
Vitamin C	1	1000 I.U.		15 g m
Niacin	1	1000 I.U.		15 g m



LEGUMES

2 TABLESPOONS LEGUMES DRIED GIVE ABOUT

Protein (mpl)	1	grows in milk	d p	7 g m
Fat	1	grows in milk	d p	10 g m
Calcium	1	bone	d h	204 g m
Iron	1	healthy blood		31 mg m
Vitamin A	1	1000 I.U.		171 mg m
Vitamin B	1	1000 I.U.		98 mg m
Vitamin C	1	1000 I.U.		85 mg m
Niacin	1	1000 I.U.		85 mg m



BREAD

1 SLICE OF BREAD OR 1 SAUCE DISH OF CEREAL GIVES ABOUT

Protein (mpl)	1	grows in milk	d p	5 g m
Fat	1	grows in milk	d p	10 g m
Calcium	1	bone	d h	215 g m
Iron	1	healthy blood		50 mg m
Vitamin A	1	1000 I.U.		50 mg m
Vitamin B	1	1000 I.U.		50 mg m
Vitamin C	1	1000 I.U.		50 mg m
Niacin	1	1000 I.U.		50 mg m



VEGETABLES

1 SAUCE DISH OF THESE VEGETABLES GIVES

Protein (mpl)	1	grows in milk	d p	5 g m
Fat	1	grows in milk	d p	10 g m
Calcium	1	bone	d h	215 g m
Iron	1	healthy blood		50 mg m
Vitamin A	1	1000 I.U.		50 mg m
Vitamin B	1	1000 I.U.		50 mg m
Vitamin C	1	1000 I.U.		50 mg m
Niacin	1	1000 I.U.		50 mg m



POTATO

1 LARGE WHITE POTATO GIVES

Protein (mpl)	1	grows in milk	d p	4 g m
Fat	1	grows in milk	d p	10 g m
Calcium	1	bone	d h	215 g m
Iron	1	healthy blood		50 mg m
Vitamin A	1	1000 I.U.		50 mg m
Vitamin B	1	1000 I.U.		50 mg m
Vitamin C	1	1000 I.U.		50 mg m
Niacin	1	1000 I.U.		50 mg m



FRUIT

1 SERVING OF THESE FRUITS GIVES

Protein (mpl)	1	grows in milk	d p	5 g m
Fat	1	grows in milk	d p	10 g m
Calcium	1	bone	d h	215 g m
Iron	1	healthy blood		50 mg m
Vitamin A	1	1000 I.U.		50 mg m
Vitamin B	1	1000 I.U.		50 mg m
Vitamin C	1	1000 I.U.		50 mg m
Niacin	1	1000 I.U.		50 mg m



SUGAR

3 TEASPOONS OF SUGAR GIVE

Protein (mpl)	1	grows in milk	d p	15 g m
Fat	1	grows in milk	d p	15 g m
Calcium	1	bone	d h	15 g m
Iron	1	healthy blood		15 g m
Vitamin A	1	1000 I.U.		15 g m
Vitamin B	1	1000 I.U.		15 g m
Vitamin C	1	1000 I.U.		15 g m
Niacin	1	1000 I.U.		15 g m



MOLASSES

3 TEASPOONS OF MOLASSES GIVE

Protein (mpl)	1	grows in milk	d p	10 g m
Fat	1	grows in milk	d p	10 g m
Calcium	1	bone	d h	10 g m
Iron	1	healthy blood		10 g m
Vitamin A	1	1000 I.U.		10 g m
Vitamin B	1	1000 I.U.		10 g m
Vitamin C	1	1000 I.U.		10 g m
Niacin	1	1000 I.U.		10 g m

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SUGGESTED KINDS AND AMOUNTS OF FOOD NEEDED PER DAY—EQUIVALENTS MAY BE USED

his diet to insure adequacy. The patient may be given a written or printed list of the foods included in it,—milk, eggs, meat, butter, fruit, vegetables, whole grain or enriched bread and cereals, and sugars. It should state the food constituents each food contains, how each helps to protect the health of the body and the amounts of each necessary to help to insure protection. Or the foods may be illustrated with pictures accompanied with statements of the amounts of the various foods necessary for the protection of the body, and the functions of each food (p. 48).

Sometimes a patient is able, when given a list of the food values of the various foods in terms of average servings, to compute his diet in grams of food necessary to meet the food prescription (Table 15). However, in most cases the diet must be computed for the patient and the results given to him in terms of servings of food. It is sometimes found, in talking with the patient that his usual food intake does not contain certain foods necessary for the adequacy of the diet,—perhaps because they are not customary, or are unfamiliar or too expensive, or because he dislikes them. He should be helped to realize the contribution these foods make to the diet so that he will be willing to include them. Food likes and dislikes as molded by family or religious customs also influence the choice of food and the food intake.

The cost of food is a restricting factor, and when food money is limited or seems not to be wisely spent, the patient should be helped to see how he can plan more judiciously his expenditures for food. To this end, he may be asked to keep a week's record of the kinds and amounts of food he purchases, with the costs. A special form for this purpose, arranged to

show the patient what to record, is advisable and will impress him with the importance of keeping the record accurately (pp. 50-51).

The money that the patient's income will allow him to spend for food must be known, for upon this will depend to a certain extent the choice of food for the diet. The amount of money available must be considered in relation to the number of people for whom it must provide, for although in itself it may seem a large sum, when divided among the number in the family the allowance per person may be inadequate.

To help the patient to plan his food purchases in terms of the kinds and amounts of food that he needs, the various factors that influence the prices of food should be known, such as the quality of the food, the quantity to be purchased and whether to purchase in bulk or in package, the existing market prices and the seasonal variations in price.

Planning the best expenditure of the food money cannot be accomplished in one conference with the patient or the person who plans and purchases for the household, but usually requires several conferences. The extent to which the patient can be so helped will depend upon his intelligence, the cooperation given by himself and his family and the amount of money available—for below a certain level of cost an adequate diet cannot be purchased.

The chart on page 52 will be a helpful guide in ensuring the purchase of an adequate diet at minimum cost.

The composition of a food, or what it contains for body needs, should be considered along with its cost,—and that is the conception which the patient should learn to hold in order to secure the greatest value for money expended. Often,

FORM FOR PATIENT TO RECORD THE WEEK'S EXPENDITURES—Continued

FOOD MONEY

Name _____ B D \$ _____

Address _____

Date _____

S S in B D _____

S S outside _____

Nationality _____

Family	Adults	No	Sex	Age	Occupation	Income
	Children					

INCOME

EXPENDITURES

WKLY

Rent _____

Light and Heat _____

Electricity _____

Gas _____

Coal _____

Wood _____

Clothing _____

Insurance _____

Carfare _____

Laundry _____

Ice _____

Cleaning Materials _____

Church _____

Extras _____

Total

FOOD

GRAND TOTAL

FM #47

to this end, it is necessary to take time to discuss with him the various food groups and their food values

Milk, on which so much emphasis is placed, is often considered expensive. But when the patient sees, from the

pictures of the body systems with the foods necessary for their maintenance and health (p 46), that milk provides more food constituents than any other single food, he realizes that for its cost he gets a very high return in food values. He

BASED ON THE DIETARY RECOMMENDATIONS OF THE BUREAU OF HOME ECONOMICS, U S DEPARTMENT OF AGRICULTURE, CIRCULAR 296

The following are about equal in food value

1 qt. fluid milk	1 1/2 ounce
17 oz. evaporated milk (1 tall can holds 14 1/2 oz.)	1 1/2 pound
5 1/2 lb. American cheese (Cheddar)	1 1/2 average 1 1/2 pound = 1 1/2

can be shown also the amounts of other foods it would be necessary to use to secure the various food constituents in the amounts supplied by a cup of milk. As a source of calcium, for example, he is shown that except for cheese there is no practical substitute for milk, that to provide the amount of calcium that is contained in a cup of milk, $4\frac{1}{2}$ pounds of meat would be required, or exceedingly large amounts of vegetables (Table 30). Similarly, milk is shown to be a good source of phosphorus, a cup giving as much as one ounce of cheese, or two eggs, or four ounces of meat (Table 32), but not so good a source of iron, since a pint of milk would be required to supply the amount of iron contained in an ounce of meat, and over a pint to supply the amount of iron in one egg (Table 35). Moreover, it is demonstrated that a cup of milk contains protein in an amount

lar food constituent, it may be economical as a source of another, and thereby justify its purchase. He recognizes that a food must be evaluated with reference to all of its food constituents, that milk, for example, is expensive if considered with reference only to its content of iron, yet has such liberal amounts of calcium, phosphorus, protein and vitamin A, thiamine, riboflavin, niacin, and increased vitamin D in vitamin D milk, and contributes to so many body needs that it is, in fact, an economical food. He is shown that when the bread and cereal he uses with milk are whole grain or enriched products, they will supply iron at a low cost.

In the following chart foods are listed that are approximately equivalent to milk in protein, and they can be compared to milk with respect also to their content of other food constituents.

Protein Foods	Household Measure	Protein	Fat	Carbohydrate	Calcium	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
		Grams	Grams	Grams	Milli-grams	Milli-grams	Micro-grams	Micro-grams	Micro-grams	Milli-grams	Milli-grams
Milk	1 glass	8	9.5	12	253	5	461	125	523	22	3
Cheese American	1 ounce	7	10	1	279	3	450	7	165	06	
Egg	1	7	5		27	1.5	500	75	120	03	
Meat	1 ounce	6.5	2.5		4	11		48	60	2.23	
Fish (non fatty)	1 ounce	8			5	3		5	60	1.80	

equal to that in one ounce of meat or fish, or poultry, or cheese, or in one egg, besides giving extra fat (Table 25), and in carbohydrate, one cup of milk approximates one medium orange, or two crackers or one thin slice of bread (Tables 21 and 24). Also, various foods are shown that contain the vitamins in about the same relative amounts as milk (Tables 41-45).

Thus the patient sees that even though a food is an expensive source of a particu-

Cheese is usually inexpensive and can be used satisfactorily as a main dish because it can be so readily combined with cereals and other foods. The patient learns, by means of the chart, pp 46, 48 that it is a rich source of calcium as well as of phosphorus, protein, fat and vitamin A, and that it can be combined, to the satisfaction of the appetite, with a food which will supply the carbohydrate it lacks.

The egg is shown under each food con-

stituent except carbohydrate, in the illustration, p 46 In this way the patient appreciates its significance in the diet it is a good source of protein, fat, phosphorus and iron, and supplies vitamins A, and D, thiamine and riboflavin Here again the patient will learn to compare the egg with other foods equivalent in food value, and to consider the cost in terms of seasonal variation and the quality or grade of the product

Meat and meat substitutes are almost always found to be included in the patient's food intake, for meat in particular is generally desired

It is demonstrated to the patient, as in the preceding discussion of milk, that an ounce of meat, fish, poultry or cheese, or one egg contain approximately equivalent amounts of protein (p 53) Thus he realizes, through visual presentation, that he has a goodly range of sources of protein from which to select, and that when his money for food requires the choice of one of the cheaper sources he is still satisfying body needs

He learns that meat is also a good source of phosphorus and iron, and that it adds fat in varying amounts that with respect to the vitamins it can be considered a source of thiamine, riboflavin and niacin While the average serving of fish is equivalent in protein—and only slightly less so in phosphorus—to the average serving of meat, it is lower in fat and iron

Butter is an important source of vitamin A, as well as of fat The margarine that are now fortified with vitamin A make them of approximately equal food value However, the vegetable oils, such as olive oil, do not carry vitamin A

Vegetables and fruits are frequently used in minimum amounts and even omitted from the diet as the patient considers them expensive and of little food value Again, the pictures of the body systems

with the foods that supply their needs, in which vegetables and fruits appear so frequently, will show the patient that for their rich and various contributions to the body these foods are not expensive He learns that they contain varying but appreciable amounts of carbohydrate, minerals and vitamins When the cost of the diet must be kept low, the vegetables and fruits that are the cheaper sources of the food constituents are stressed For example, to ensure adequate amounts of ascorbic acid in the diet, oranges or other citrus fruits, tomatoes, or raw or leafy vegetables must be taken daily, the choice being made according to the cost—oranges when they are cheap, fresh tomatoes and cabbage in season and canned tomatoes when fresh foods are expensive (Tables 28 to 45)

The discussion of fruit provides an excellent opportunity to demonstrate the place of candy in the diet, especially to the child He is shown that the candy usually eaten can score only one point in its favor,—it provides energy for the body, whereas fruit scores several points in that it is not only a source of energy but in addition provides minerals and vitamins necessary for the protection of health It is especially important to stress these facts to the patient whose diet is apt to be lacking in minerals and vitamins, either because of faulty food habits or for economic reasons It often appeals to the child to show him in terms of food values what he receives for his pennies spent for candy and those spent for fruit—such as the orange, or banana or apple

The more desirable types of candy, those made with dried fruits, nuts and molasses may be emphasized by giving the patient recipes for making them The appeal of these, especially to the child, may be increased by putting the

recipes into booklets with attractive covers. Samples of such candies may be given, and this affords an excellent opportunity for stressing the time at which candy may best be eaten—after the meal so that it will not interfere with the appetite. The preparation and distribution of these "healthful sweets" in attractive containers at the holiday season adds to the festive spirit and helps to interest the child so that the recipes will be tried at home.*

Legumes or seed vegetables are so frequently used in the low cost diet that emphasis is placed on the importance of combining them with a food that is a source of complete protein, such as milk, cheese, egg or meat, to make a satisfactory meat substitute. It is demonstrated that they contain rich amounts of carbohydrate, phosphorus, iron, thiamine and riboflavin, but only incomplete protein (except for the soy bean), and no fat,—which doubtless accounts for their being combined with a food of high fat content in many traditional dishes.

Bread, cereals, crackers, and flour are the forms in which the patient knows the grains. He is shown the different kinds of grains that are generally used—wheat, oats, rice, rye, barley and buckwheat—and their contributions to the body are explained and illustrated. Both adult and child are interested in a discussion of the seed of the grain. By means of diagrams and other devices, the patient is shown how the different layers of the seed may be removed in the process of milling (p. 56). The whole grain products represent more nearly the entire content of the seed and contribute minerals and vitamins that are lacking in the refined products. The white inner part of the seed is used for white flour and white

breads and cereals—products which are mostly starch and lacking in vitamins and minerals. At the suggestion of the government, manufacturers now add iron, thiamine and niacin to these products so that they now approach the food value of the natural product. Thus the patient is led to see the advantage to the body of using the whole grain or enriched products.

When the price of *potatoes* is high, many people use macaroni or white rice instead. The patient is shown that these are not comparable in food value because macaroni and white rice lack the minerals and vitamins which the potato supplies unless they have been fortified as described above, although they contain approximately the same amount of carbohydrate.

The *protective diet* (Part I, Chapter 2, p. 6) is now better understood by the patient as to the completeness of its contribution to body needs. He realizes the significance of the word "protective," and that the prominence is given, rightly, to milk, eggs, meat, butter, vegetables, fruits, and whole grain or enriched products. That the normal diet is a protective diet can be impressed upon the patient's mind in the form of a game, by listing on graph paper, or on paper similarly ruled, the foods contained in the normal diet, with headings for the various food constituents, and checking, either with a mark or drawings or miniature pictures of the foods, the constituents that each food contributes.²

The patient sees that the protective diet is a guide to the selection of foods to fulfill the body's needs. If in following it he chooses the cheaper cuts of meats or the meat substitutes, and the cheaper fruits and vegetables when they provide

*How to Teach Nutrition to Children
Chapter IX.—Healthful Sweets

²See booklet and chart prepared by the
Boston Dispensary Food Clinic for the Maltex
Co., Burlington, Vermont.

BRAN
The husk and brown layers
rich in

iron
phosphorus
protein (incomplete)
thiamine

DIAGRAM OF WHOLE GRAIN

for healthy blood
for bones and teeth
to help keep muscle and repair*
growth stimulate the nerves healthy help
the regular bowel movement help to
burn carbohydrate

ENDOSPERM

The white center of the wheat
berry composed of

carbohydrate
(starch)
protein (incomplete)
for energy
for growth muscle and repair*

GERM

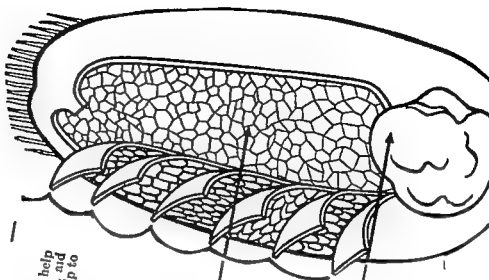
The plant germ or embryo, the
part which sprouts when the
wheat berry is planted. A
valuable source of

protein (incomplete)
thiamine

riboflavin

niacin

for growth muscle and repair*
to help keep the nerves healthy help
growth, stimulate the appetite and
burn carbohydrate
promotes growth helps to keep skin
healthy growth helps to keep skin
functioning of every body cell
helps growth prevents pellagra keeps
skin and other tissues healthy



* When supplemented by a complete protein

the desired food values, he will have an adequate diet at minimum cost.

Individual taste may lead the patient to omit certain foods from his diet because they are strange, or because he is not accustomed to them or dislikes them. If they are essential to the adequacy of the diet, the omission cannot be disregarded. The reason for the omission, whether due to a mental attitude, a physical condition or a social or economic factor, should be ascertained. If the food is unfamiliar or not customary, a sample of it is shown, and frequently the patient tastes of it in the clinic or takes a sample to use at home, with suggestions for ways of preparing it and including it in his diet. If the name of the food is new to the patient or difficult to spell or pronounce, it is written for him and pronounced repeatedly. Knowledge of the contribution that the food makes to the body's needs and pictures that illustrate the food constituents it contains will help him to realize its value. Pictures of healthy animals on a satisfactory diet in contrast with others suffering from diets deficient in the necessary food constituents will illustrate for him the ill effects upon health when certain of these food constituents are not present in the diet (p. 57-58). Suggestions for new ways of preparing the food disliked are helpful, and the patient may gradually lose his distaste for a food if it is served at first in small amounts. If a food is disliked because of some unpleasant association with it, the patient is helped to overcome the effects of this association, and here much help can be given by the psychiatrist (Part I Chapter 4).

Nationality, race and religion are important factors in determining food likes and dislikes, and the customs and food habits of the family. To work intelligently with people of foreign birth or

their immediate descendants and to win their confidence and cooperation, there must be an understanding of their racial

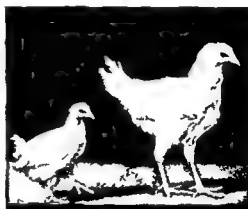
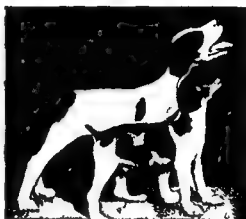


Illustration of National Diet. The Little Pig Had None.
MILK MADE THE DIFFERENCE. AND THIS LITTLE PIG HAD NONE.

backgrounds and the significance of their holiday observances and religious ceremonies, their social traditions, customs

and beliefs. For example the religious laws of the Jews place restrictions on certain foods prohibit the use of others and dictate the methods of preparation of food. A knowledge of the laws is essential to success in planning a diet for the orthodox Jewish patient.

A study of the food habits of the different races will relate itself to the political and economic situation of a country its

culture literature and technological progress cannot but result in a greater appreciation and understanding of the foreign born patient a clearer insight into his problems and greater success in teaching him and planning his diet with him. With such a point of view American ways will not be imposed upon the patient but the better features of the native diet will be brought into harmonious adjustment



BEFORE AND AFTER ADMINISTRATION OF RIBOFLAVIN

How the little rat looked when he was having food that did not contain riboflavin and how he looked when he was given different food that contained enough of the vitamin

geography history topography and climate. The study will inevitably lead to a comparison of the means and methods of production preservation supply and distribution of food in countries of advanced civilization and in those of more primitive standards and show how these factors determine the food practices of the various peoples.

A knowledge of racial backgrounds influencing habits and customs the manner of life and ideals of peoples their art

with changes which under the new environment are necessary for the protection of health.

Yet diets the world over are made up of food materials that can be classified under a very few heads: dairy products (eggs, meat, fish, fats, fruits and vegetables, cereals and breads and sweets. The difference lies chiefly in the specific foods used from each of these groups and in the methods of preparation. An understanding of food usages as well as of

dishes and their ingredients, typical of a people, is essential when teaching the foreign born patient (Table 1)

The diet is computed in general terms in relation to information obtained through the nutritional history, the patient's usual food intake, his individual tastes and the food usually available in the home or eating place outside the home

The *measurement of foods* to be used daily should be stated in definite amounts, and in terms that the patient will understand and find practical, so that he can estimate his servings with a fair degree of accuracy, thus helping to ensure his use of foods in prescribed amounts to fulfill body needs

Household measures most frequently used are the tablespoon, teaspoon and measuring cup. These utensils are shown to the patient to make sure that he is familiar with them and visualizes them. In like manner the differences in level, rounded and heaping measurements are indicated (Table 14)

Other units of measurement familiar to the patient are the sauce dish and the cereal bowl, and these are practical units to use if the patient is accustomed to having food served in such dishes. He is shown a dish of the usual size and asked to compare it with the one he uses at home. The level to which the average serving fills the dish is also demonstrated

The *ounce* is sometimes explained in terms of the tablespoon, one ounce being equal to two tablespoons of fluid, and an ounce of cottage or cream cheese equaling one rounded tablespoon. The terms cup, pound and other measurements should be written out as abbreviations may be confusing to some patients

The *inch* is used to describe the dimensions of the average serving of certain foods, such as bread, crackers and cake

The patient often finds this measurement particularly difficult to visualize, and therefore it is important to demonstrate it by means of real foods or food models, or by means of the ruler. In this way he retains a mental picture of it by which to estimate his servings

The *gram* is frequently referred to when teaching the patient (p 61, 62), and it is therefore necessary to explain and teach the metric system. A gram can be explained as the weight of the amount of water or like substance that would be contained in a cube with its three dimensions each measuring 1 centimeter (1/100 of a meter). Such a cube can be shown to the patient and also a meter stick if desired. The gram can further be related to the ounce which is familiar to the patient, explaining that 30 grams equals 1 ounce. A gram weight which is commonly used in laboratories can be shown. The patient can also be taught that when the gram is divided into a thousand parts, each part is called a milligram, and when the gram is divided into a million parts, each part is called a microgram. Further a gram multiplied by a thousand makes a kilogram, which is equal to 2.2 pounds

A *demonstration of the servings of foods* will give the patient a definite picture of the sizes of the servings he is to use so that he can estimate them without having to resort to the use of the teaspoon, the tablespoon and the measuring cup in apportioning the amounts of food prescribed in the diet

Food models especially are helpful in demonstrating certain foods which are irregular in shape or size such as meat for stew, since the dimensions cannot be given in inches. Although real foods can be used, reproductions of the average servings of foods in wax are more convenient. The initial cost of wax models

is offset over a period of time by not having to replenish daily the fresh foods, and their use is far more economical in the end. They can be used where it would be impossible to renew the food daily. If wax models are not available, cardboard cut outs or pictures of the actual sizes of the servings of the foods can be used. These are not so satisfactory, however, since they do not give all the dimensions.

Dietary directions should be written preferably on a special form. The patient will regard this as of the same nature as the prescription which he receives for medicine,—they are both orders or directions that should be carried out. Moreover, the fact that the diet is especially planned for him helps to restrain the patient from trying to apply it to other members of his family or to his friends. A printed diet list is not desirable, even when individualized to a certain extent by crossing out or encircling the foods not to be used.

"Food for the Day" (Part I, Chapter 2), which lists the kinds of food to be used, with amounts in household measures, gives the patient a general view of his dietary plan. He can see where it is like his usual diet, wherein it differs, and whether it provides enough food and food of the kind that he likes. Thus it does not seem altogether new and unfamiliar to him. It will show him whether he can fulfill it from the food usually available at home or in the place where he eats. Moreover, he can use the list as a guide in planning, purchasing and preparing foods for his diet.

Equivalents of the foods listed in "Food for the Day" should be known by the patient so that he may find the diet flexible and be able to vary it within the limitations it prescribes. For this he must learn the values of the different

foods given, and how these foods may be exchanged for others approximately equivalent in food value. A means of helping him here is to state on the form, "Food for the Day," or on a separate list, the amounts of various foods that he may substitute for those prescribed in the diet (p 18, 61, 62). Frequently it is expedient to demonstrate to him in what respect these foods are equivalent so that he will better understand and remember them.

The *carbohydrate* content of vegetables and fruits is usually expressed in terms of percentage,—“5 per cent,” “10 per cent,” “15 per cent,” “20 per cent” vegetables and fruits being the classification popularly used. But since it is not easy for the average patient to think in terms of percentage, a simpler method must be used to help him to visualize the carbohydrate content of foods. Fortunately the piece of loaf sugar weighs five grams. It is convenient, then, to visualize the approximate carbohydrate content of the average serving of vegetables and fruits with one, two, three, four or more lumps of sugar.

Moreover, the lump of sugar can be used to show how many servings of a fruit or vegetable the patient may take in terms of his diet, and how he can interchange them. For example, he understands that four servings of a “5 per cent” vegetable approximate four lumps of sugar, and that instead he may have two servings of a “5 per cent” vegetable and one serving of a “10 per cent” vegetable, or two servings of a “10 per cent” vegetable and none of a “5 per cent” vegetable (p 61-62).

Wax models of foods and lumps of sugar are effective materials with which to demonstrate carbohydrate content. A rough sketch of a food with the lumps of sugar that indicate its carbohydrate

ONE OF A SERIES OF EQUIVALENTS OF FOOD CONSTITUENTS USED WITH AND DISTRIBUTED TO THE PATIENTS

FOOD EQUIVALENTS—CARBOHYDRATE

CARBOHYDRATE is the name given to the starches and sugars in foods. All vegetables, fruits, cereals and breads contain carbohydrate

"50% Vegetables

Each serving contains about 5 grams of carbohydrate, equal to the amount in 1 lump of sugar		
Asparagus	8 stalks	Cauliflower 1 saucedish
Beans string		Celery 4 stalks
Beans canned	1 saucedish	Chard 1 saucedish
Broccoli	1 branch or 1 saucedish	Cucumber—medium 1
Cabbage cooked	1 saucedish	Eggplant 4 slices
Cabbage raw	1 heaping saucedish	Lettuce 10 leaves or 1 head
		Pepper, green 1 large
		Radishes 10
		Rhubarb 1 saucedish
		Sauerkraut 1 saucedish
		Spinach 1 saucedish
		Squash summer 1 saucedish
		Tomato canned 1 cup
		Tomato fresh 1
		Tomato juice 1 cup

"10% Vegetables

Each serving contains about 10 grams of carbohydrate equal to the amount in 2 lumps of sugar		
Beans, string, fresh	1 saucedish	Carrots cooked 1 saucedish
Beets	2 medium	Carrots raw 1
Brussels sprouts	7 small	Onions 2 medium
		Peas, canned 1 saucedish
		Pumpkin 1 saucedish
		Squash Hubbard 1 saucedish
		Turnips 1 saucedish

SERVINGS OF FRUIT EQUIVALENT TO ONE ORANGE (Medium Size)

Each serving contains about 10 grams of carbohydrate equal to the amount in 2 lumps of sugar

Fresh Fruits

Apple—large	1 1/2	Grapefruit juice (unsweetened)	1 cup	Pineapple (1" thick)	1 slice
Apricots fresh	2	Grapes	15	Pineapple juice (unsweetened)	1/2 cup scant
Banana—medium	1 cup	Lemons	1 1/2	Plums	2
Berries		Orange—medium	1	Strawberries	10 large
Cantaloupe		Orange juice	1 cup	Tangerines	1 large
Cherries	15	Peach	1	Watermelon	1 small slice
Grapefruit	1	Pear—large	1		

Dried Fruits

Apricots dried halves	3	Dates small	2	Figs	1
		Prunes—medium	2	Raisins	1 tablespoon

SERVINGS OF VEGETABLES AND CEREALS EQUIVALENT TO ONE SLICE OF BREAD

Each serving contains about 15 grams of carbohydrate equal to the amount in 3 lumps of sugar

Beans baked	2 rounded tablespoons	Paranip	1 large
Beans lima	2 rounded tablespoons	Potato sweet	1/2 small
Corn canned	3 rounded tablespoons	Potato white	1 small
Corn fresh	1 ear (small)		
Bread rye	1 slice	Cornstarch	1 1/2 tablespoons
Bread white	1 slice	Flour	3 tablespoons
Bread whole wheat	1 slice	Matzoh (square type)	1
Crackers graham	2	Matzoh meal	2 tablespoons
Crackers saltines	5	Ry krisps	3
Crackers Unedas	3 1/2		
Macaroni cooked	4 rounded tablespoons	Cornflakes	1 saucedish
Oatmeal cooked	1 scant saucedish	Puffed rice	2 saucedishes
Rice cooked	4 rounded tablespoons	Puffed wheat	2 saucedishes
Tapioca uncooked	1 tablespoon	Shredded wheat	1 large or 1 small

ONE OF A SERIES OF PICTURE SHEETS FOR EACH OF THE FOOD CONSTITUENTS USED
WITH AND DISTRIBUTED TO THE PATIENTS

CARBOHYDRATE (Starch and Sugar)

Carbohydrate (Starch and Sugar)
Provides energy for work and play

























Carbohydrate (Starch and Sugar) is found in —
Bread
Cereals
Macaroni
Potatoes
Dried peas and beans
Flour
Rice
Vegetables
Fruits
Fruit juices
"Sweets" such as sugar, candy, jelly, honey
Desserts such as cake, pie
Tonics

Carbohydrate is usually measured in grams (30 grams = 1 ounce)

Daily Requirements of Carbohydrate Measured in Grams

Adults 4-6 grams for each kilogram (2 2 pounds) of body weight
Children 6-10 grams for each kilogram (2 2 pounds) of body weight

Below are pictures of servings of important food sources of carbohydrate. Each serving provides 15 grams of carbohydrate. Write in the blank space the amounts of these foods you eat in a day with the number of grams of carbohydrate beside them. Add the figures and see if you get the number of grams you require.

Amounts of Foods	Number of Grams		
1 large orange  15 grams 1 cup orange juice  15 grams	1 small potato  15 grams 1 small sweet  15 grams		
6 halves apricots (dried)  15 grams 2 prunes  15 grams	1 sauce dish rice  15 grams 1 sauce dish macaroni  15 grams		
1 large banana  15 grams	1 sauce dish carrots  15 grams	1 scant sauce dish lima beans  15 grams 1 scant sauce dish fresh peas  15 grams	1 small piece cake  15 grams 2 table-spoons ice cream  15 grams
1 glass milk  15 grams	1 slice bread  15 grams 1 sauce dish oatmeal  15 grams	2 graham crackers  15 grams 3 1/2 soda  15 grams 5 saltines  15 grams	3 lumps sugar  15 grams 1 table-spoon jelly  15 grams
Total _____			

content is often sufficient for the purpose. Posters designed to show amounts of foods that are equivalent in their content of a particular food constituent are especially helpful in teaching a group.

The *protein* content of foods equivalent in protein is explained to the patient in terms of the amount present in one ounce of meat (p 53). The protein foods most commonly used have been discussed in detail under meat substitutes (page 54). The patient is shown that although milk and cheese contain additional fat, he may substitute them for meat if he omits one teaspoon of butter from his diet for each cup of milk. He sees that if he uses as a substitute any of the legumes, all of which contain liberal amounts of carbohydrate, he must omit from his diet one small potato or its equivalent and add one teaspoon of butter to supply the fat in which legumes are lacking.

The *fat* in foods equivalent in fat is stated in terms of the amount present in one teaspoon of butter (Table 27). The importance of butter as a source of vitamin A, as well as of fat, is stressed to the patient. He is shown that since the other fats, except cream and fortified margarine, are not good sources of vitamin A, the use of many of these equivalents is dependent upon the presence in the diet of liberal amounts of milk or other foods which are excellent sources of this vitamin.

The *calcium* in various foods that are equivalent with respect to calcium is given in terms of the amount of it present in two tablespoons of milk (Table 29). The contrast of this small amount of milk with the large quantities of other foods, except cheese, that must be used to supply the same amount of calcium, helps to emphasize to the patient the importance of milk in the diet. This is further demonstrated with various com-

binations of foods necessary to supply a day's requirement of calcium for the adult and the child (Table 30), showing that when the amounts of milk and cheese are reduced to the minimum, larger quantities of other foods must be used. Vegetables and fruits vary so widely in calcium content that it is advisable to list them according to the relative value of the average serving (Table 28). This is also a convenience when making a selection of vegetables and fruits according to their calcium content.

The *phosphorus* content of various foods that are equivalent in respect to phosphorus is stated in terms of the amount of it present in four tablespoons of milk. As with calcium, various combinations of foods supplying the day's requirement of phosphorus are given, and the vegetables and fruits are arranged according to the relative value of the average servings in sources of phosphorus (Tables 31-33).

The *iron* in various foods that are equivalent in their content of iron is stated in terms of the amount of it present in one egg (Table 35).

The actual amounts of the various minerals needed daily should be demonstrated in terms of the foods necessary to obtain them, if the patient is to see how the requirements can be secured. This is particularly true in the case of iron. Because the amount of it contained in a single food is infinitesimal, the requirement has to be obtained from many foods, whereas the calcium requirement can be fulfilled with a single food,—milk. While the egg is an excellent source of iron, it can contribute but an eighth to a tenth of the day's need. A chart showing the egg and foods that are equivalent to it in iron, will help the patient to visualize the sources from which he must obtain eight to ten times the amount of iron

supplied by the egg, to meet the day's requirement. For example, the chart will show that $2\frac{1}{2}$ slices of whole grain bread will give another eighth of the amount of iron needed, and that meat and certain vegetables and fruit will make important contributions.

Various combinations of foods are given that may be used toward supplying the day's requirement of iron (Table 36). To help the patient further, vegetables and fruits are listed in terms of the relative values of average servings as sources of iron (Table 34).

Vitamin equivalents are taught the patient on the basis of the recommended allowances of the Committee on Food and Nutrition of the National Research Council (Table 2). The protective diet (Part I, Chapter 2) can be reviewed in terms of its vitamin content, and the chart (p. 46) with columns of foods arranged under the headings of the various vitamins, will help the patient to visualize the foods supplying each vitamin, and also the fact that certain foods supply several vitamins. The patient is also given both printed lists of vitamin equivalents and picture sheets (p. 62), that he may evaluate the vitamin content of his diet (Tables 41-45). Inasmuch as a great deal of consideration is given now to the conservation of vitamins and minerals, the patient also receives data on this subject in chart form which can easily be remembered (p. 65). The patient should understand that food sources of vitamin D are so limited they need to be supplemented by sunlight or the "sun lamp," by medication, or vitamin D milk.

A "Meal Plan for the Day" is given to patients who wish more definite directions for combining into meals the foods listed in "Food for the Day." Such a plan is helpful also to those who have

difficulty in arranging meals of the kind to which they are accustomed from the amounts and kinds of foods allowed in the diet. It is given in skeletal form to show the patient how he can utilize all the foods, how he can vary his meals by the use of equivalents and recipes, and how the diet can be adapted to the usual routine of his meals—whether he has them with his family or group, or prepares them himself or eats in the restaurant.

The selection of food in the restaurant makes a knowledge of the ingredients of made dishes especially important, because so many of the dishes served are combinations of foods. Furthermore, in order to help the patient to make the necessary adaptations the amount of money he has to spend for food must be known, as well as the differences in the type of food served in the various restaurants in which he eats, and the difference in cost.

Recipes are given. With the list of foods for the day, and equivalents, many patients ask how they may combine these foods, or whether they may use the combinations or "made dishes" to which they are accustomed. One must have a knowledge of the ingredients of these typical dishes of the foreign born groups to be able to show the patient how he may include them in his diet. The patients themselves will often furnish recipes, or these may be obtained from books on foreign cookery or from restaurants that serve these dishes, and much information can be gleaned from visits to the small grocery stores and bakeries in the neighborhood of the foreign born.

Nationality influences the method of teaching food equivalents to the foreign born patient. With respect to the varied use of cereals by different nationalities, for example, it should be remembered that

while the American uses many kinds, with milk and sugar, chiefly as breakfast dishes, the Italian uses spaghetti with tomatoes and other vegetables, and with meat and cheese, the Jew has oatmeal or farina for breakfast, and noodles, barley or buckwheat in soups, while the Near Easterner uses cracked wheat or rice in combination with meat or nuts and vegetables. Bread is baked in such various shapes and sizes by the foreign peoples that it is difficult to visualize to the

foreign born patient a piece of bread equivalent to the average slice of American bread except by weighing it.

Exhibits Exhibits are one of the most helpful educational tools to use as a means of guidance and interpretation of food treatment. They are valuable not only for patients who come to the Food Clinic, but for those who walk through the corridors or sit on the benches. Simple nutritional facts can be taught through the medium of the exhibit.

CHAPTER 6

THE EDUCATION OF THE PATIENT ON THE THERAPEUTIC DIET

THE THERAPEUTIC DIET

It is important that the patient on a therapeutic diet shall understand the modification of his diet from the normal and the reason for the modification.

The general procedure used in teaching the principles of the therapeutic diet is the same as that for the normal diet. As with the latter the patient must know the relation of food to the body, the body needs in terms of the food constituents and the foods that supply them. The therapeutic diet must fulfill the normal needs of the body, but with a modification of the food constituents or foods, or of both, that will help to compensate for the dysfunction of the body part affected.

THE MODIFICATION OF THE NORMAL DIET

It has been noted that the modification of the normal diet may consist in one or a combination of the following procedures:

- Food constituents,—increase or decrease in amounts,
- Foods,—increase or decrease in kinds and amounts,
the omission of certain foods,
a change in the consistency of foods,
a change in method of preparation of foods,
- Meals,—a rearrangement of the number and frequency of meals and feedings.

Frequently such modifications and restrictions make more difficult the choice of food sufficient in kinds and amounts to provide an adequate diet, and the patient may need special help and direction in this respect.

PROCEDURE IN TEACHING THE PATIENT

The *physiology of the body part affected* is illustrated for the patient by charts and drawings or pictures, and its normal function in relation to food is demonstrated with simple analogies. Its *pathology* is shown by pictures when possible. With an understanding of both the normal function and the dysfunction in relation to food, the patient can be led to see how his diet must be modified.

Dietary directions follow the same procedure as for the normal diet, and the same educational materials are used.

A list of "*Food for the Day*" with equivalents is given the patient, the emphasis being placed on equivalents stated in terms of the food constituents that must be increased or decreased in amounts, according to the disease or condition.

A "*Meal Plan for the Day*" will help him to adapt the foods allowed in the diet to his usual routine of meals, with consideration given, if need be, to the consistency and method of preparation of food.

Recipes which use only the foods allowed and in the amounts prescribed by the diet are of great value to the patient.

Demonstrations are arranged for special occasions, such as holidays, to show the patient how he may participate in the family's celebration without exceeding the limits of his diet.

THE APPLICATION OF THIS PROCEDURE TO SPECIFIC DISEASES

The methods used in teaching the patient on a therapeutic diet are best illus-

trated by showing how they are applied to specific diseases

Diabetes is usually a familiar term and the patient sometimes speaks of it as the "sugar sickness"

The *body part affected* is shown by means of a picture of the pancreas (the Islands of Langerhans), and from a manikin or diagrammatic chart the patient sees its location in the body

Its *physiology* is explained in simple terms,—its function is to secrete a "juice"—insulin—which is necessary to utilize or "burn" the sugar from food

The word "sugar" must be interpreted, for the patient usually thinks of the sugar in the sugar bowl and believes firmly that he takes but little. He knows, from household experience, that sugar can be dissolved in water, and starch cannot. He is led to understand, then, that before the starch in bread, cereals, potatoes, vegetables and some fruits can be utilized by the body, it must be changed to sugar by digestive processes. He is taught that carbohydrate is the name given to the starches and sugars in food. He learns, furthermore, that such foods as meat, eggs, cheese, and even fat, are also sources of some sugar when digested or used in the body

The *pathology* of the pancreas is explained to the patient,—in a diabetic the pancreas secretes less insulin than is normal. Hence the sugar that the patient obtains from his food is not completely burned and the amount present in the body is in excess of normal. With a diagrammatic chart the patient can be shown that a part of the excess is stored in the blood, and that when the sugar in the blood goes above a certain amount it "spills over" and is excreted in the urine

If the patient shows the classical symptoms of diabetes, such as thirst, frequent urination, itching, excessive appetite or

loss of weight, these can be used to explain how diabetes is affecting the body. He is told that to be able to excrete the sugar the body must first dissolve it, and this requires large amounts of fluid. It is this need for fluid which causes his great thirst. He realizes that when he drinks large quantities of water he must urinate frequently. He is shown that the itching is due to the presence of excess sugar and when he has less sugar there will be little or no itching. His hunger and loss of weight, it is explained, are due to the fact that the body does not get the full value of the food taken, since part of it is lost as sugar in the urine

Laboratory tests are means of showing the patient that the amount of sugar in the blood and the amount excreted in the urine are indices of his condition, and that from these is determined his "sugar tolerance." Sugar tolerance is explained as being the amount of carbohydrate (sugar and starch) that he can use or tolerate without having sugar appear in the urine, or an increase of sugar in the blood. Realizing the significance of an examination of the blood, the patient's fear and aversion to the procedure is somewhat diminished

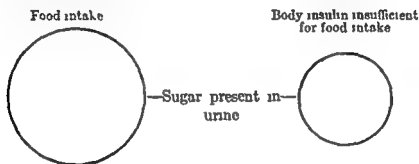
The *terminology* used with the patient should be understood by him, and many expressions that are employed easily and fluently in teaching must be interpreted. "Sugar tolerance," just defined, is one of these, and another is "sugar free," which is explained by showing the patient several samples of tested urine that contain varying amounts of sugar and contrasting these with a sample that contains no sugar and is said to be "sugar free"

Patients often color diagrams or drawings of test tubes to illustrate the test for the presence of sugar in the urine. They learn that blue indicates no sugar, green, a slight trace of it, yellow or yel

low green, about 1 per cent sugar, orange, about 15 per cent sugar, and red or reddish brown, about 2 per cent sugar—an excessive amount

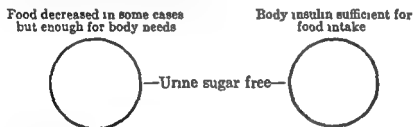
The *interdependence of diet and insulin* is illustrated by diagrams such as the following, showing that only as much food can be eaten as there is insulin to burn

the sugar content of the diet. It is explained to the patient that he has not enough insulin in his body to burn the sugar content of his food intake, and that because of this condition there is an excess of sugar in the blood, a part of which is excreted in the urine



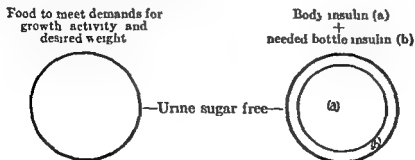
He sees, therefore, that to be "sugar free" he must reduce his food intake, since he has only enough insulin to take care of a certain amount of food, and that

he will remain "sugar free" as long as he maintains this balance between food and insulin



He is shown, further, that if the amount of insulin in his body (a) is not sufficient to take care of the food required for body needs, he must supplement his body in-

sulin with "bottle" insulin (b) to allow an adequate food intake and at the same time remain "sugar free"



Dietary directions are given to help the patient in the choice of foods he should make. The method of teaching is that used in the case of the normal diet, for the patient needs to know the normal body requirements in terms of food constituents, the foods that supply them, and in addition how, in diabetes, the food must be restricted or limited to meet the dysfunction of the body part affected, the pancreas. The reason for having food before bedtime is explained to the patient taking protamin zinc insulin.

The *measurement of food* is important in diabetes, and the sizes of the servings that the diabetic patient is to use are demonstrated to him with food models. These models, made of wax, are invaluable as a method of teaching amounts of foods by visual means to be sure that the patient will estimate his servings correctly. This method of teaching makes the use of scales unnecessary, and allows the patient to follow a more nearly normal regime of living. Frequent review of the diet in terms of what he is eating is necessary to make sure that he is following it accurately. During these conferences the patient himself often gives helpful suggestions as to varying the diet.

The *foods to be used* are written on the list, "Food for the Day," and equivalents are given, especially with respect to carbohydrate in which the diabetic diet must be restricted, and in terms of fat when that also is to be reduced. That the diet requires special foods and specially planned meals, as so many believe, is shown to be a fallacy. The patient learns, instead, that he can readily adapt his diet to the family life, with little modification or change. Points where the patient may need special help in adapting his diet should be recognized and should receive emphasis in teaching.

The patient learns that his diet has

been prescribed on the basis of the amounts of food that his body can use without excreting sugar. It can be determined usually from his weight and by the urine analysis and the blood sugar test whether this diet is satisfactorily adjusted to his sugar tolerance and if he is following it correctly.

The *record of the food intake* that the patient keeps during the interval between visits helps him to understand these findings and serves as a basis for a discussion of his food habits (Part I, Chapter 5).

The *urine analysis* for sugar places certain responsibilities on the patient. The patient is asked to bring with him, on each visit, a 24 hour specimen of the urine. Printed instructions are given for this procedure, with necessary explanation. In some instances the meaning of the 24 hour period needs to be demonstrated, with a clock or picture of one, as being the time the hands take to move twice around the clock. A clean bottle given to the patient on the first visit is a means of emphasizing to him that the container for the specimen should be free from other substances, and moreover it can be used to demonstrate the amount of urine that will be sufficient for the analysis. This helps also to emphasize the importance of the procedure of collecting the 24 hour specimen.

If the patient is to test the urine at home, each step of the procedure is explained to him, pictures of the procedure are shown to him, and he performs a test satisfactorily before leaving the clinic. He is given printed directions, both to help him to recall the procedure and to enable others at home to help him when necessary. Also he has a special form on which to record in color the results of the urine analysis (p. 71). The form indicates the times at which he is to make the

test, and a space is provided for the results of all tests made during the interim between visits to the clinic. Also, he is given crayons with which to record as nearly as possible the color of the urine

FORM FOR RECORDING THE COLOR OF THE URINE TESTED AT HOME

COLORS OF URINE TESTS FOR SUGAR				
Name	B D No			Date
Insulin—U			Dose	
Days	Night Time to Before Breakfast	After Breakfast to Before Noon Meal	After Noon Meal to Before Night Meal	After Night Meal to Bedtime

reaction, having practiced in the clinic the selection of the correct colors. This record, being something that he can observe indicates to him what his condition is. He is told that a reaction that is green yellow in color touches the danger line, and that then he must not delay in

consulting a doctor. It may indicate a maladjustment between diet and insulin. Such a record of the urine reactions between visits also visualizes to the physician the amount of sugar present in the urine during this period and is a guide to him in treatment. Moreover, the patient soon realizes that if he does not state his food intake correctly the urine analysis will probably indicate it, and consequently he discusses more frankly the circumstances when, for some reason, he has not adhered to his diet.

The administration of insulin should be learned by the patient, when conditions require it, so that he need be dependent on no one else except for unusual conditions. He should learn in the clinic to administer insulin to himself properly and with confidence, before he does it at home. In teaching the administration of insulin the patient is first shown a series of photographs illustrating each step in the procedure. When instructing the patient the pictures can be referred to as each step is taken.

It sometimes takes infinite patience to overcome aversion to the procedure, fear of the prick of the needle and self-consciousness concerning lack of skill. Great care is taken to teach him the necessity of sterilizing the syringe, the needle and the top of the insulin bottle, and of strict cleanliness of the hands, and of the flesh at the point of injection of the needle. Some other member of the household should be able to administer insulin to the patient, in case of emergency.

The type of insulin syringe used should be of simple construction, with as few figures as possible, and a diagram of the syringe on which is plainly indicated the amount of dosage, with the time at which it is to be taken, helps the patient to carry out the procedure correctly (p 72). The symptoms of an insulin reac-

tion are explained to the patient in simple terms so that he will recognize them if they occur, and his fear of a reaction is allayed when he learns that he can easily counteract it by taking some sugar, bread or cereal, or preferably the juice of an orange. Emphasis is placed on the use of food before bedtime so that there will be sufficient food to balance the amount

habits of hygiene, both physical and mental, and special emphasis should be placed on means and facilities for developing good habits of personal hygiene. A pamphlet on "The Care of the Feet," and pictures and exhibits can be used in teaching the patient.

Other aids in teaching will suggest themselves. The knowledge which the patient acquires will become more significant and vital to him if he restates it in a notebook in his own terminology and illustrates it with drawings and pictures. Some guidance will usually be necessary. Such practice will help the patient to apply more understandingly the principles taught him.

Peptic ulcer will be used to illustrate further the procedure in teaching the patient on a therapeutic diet, since this condition requires not only an increase above the normal in the amount of a food constituent,—in this case, fat,—but also a change in the consistency of foods.

The *body part affected* is illustrated by means of pictures and charts of the gastrointestinal tract, and the patient is helped to understand the normal condition of the lining of the stomach and how the presence of ulcer causes dysfunction of the stomach or intestine.

Dietary directions are given. To help the patient to realize the reason for his discomfort the ulcer may be likened to a sore. He is accustomed to treat a sore on his body, and knows that acid, touching it, causes it to sting, and he understands that the ulcer would be irritated by the same means. He is told that there are two sources of acid that may affect the ulcer: the accumulation of the gastric juice and the acid tasting foods. It is clear to him that the latter should be generally avoided. However, orange juice, strained and diluted and taken after other food is usually tolerated. He is

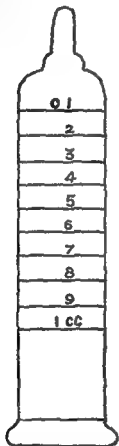


DIAGRAM OF STRINGER, THE TIME AND DOSEAGE TO BE WRITTEN IN FOR THE PATIENT

of insulin in case of a delayed utilization of the insulin. As a further precaution, and as a means of reassuring him, he is given an identification card to carry. Besides his address, it states that he is a user of insulin, and from whom he is receiving medical treatment.

Environmental factors that affect the diet must be considered in the therapeutic diet as well as in the normal. Most important are those factors that influence the

shown that the irritation can be lessened by eating, at frequent and regular intervals, food with which the hydrochloric acid combines readily, such as milk, and further, that the secretion of hydrochloric acid can be decreased by the use of large amounts of fat, and by avoiding foods that stimulate its flow, such as meat, meat broths and gravies and other foods. This helps him to understand why milk and cream are so important and satisfactory in the treatment of ulcer.

Carrying further the analogy between the ulcer and a sore, the patient will understand that the consistency of the foods that come in contact with the ulcer should be like a salve—smooth and soothing. He is told that the stomach has certain movements for “churning” and “grinding” food, which are a part of the process of digestion. He readily sees that giving food of a soft, smooth consistency decreases the work of the stomach because the food preparation has been carried on outside the stomach. Further, he is led to see that meat contains fiber that requires “grinding” by the stomach, and that for this reason and because it stimulates the flow of the hydrochloric acid it must be omitted from the diet until the ulcer heals.

The strainer or sieve is at hand to show that only such foods as can go through the fine meshes should be used. Samples of strained foods—vegetables, cereals and fruits,—especially those in glass containers in which the food can be seen, are valuable in helping to explain fiber, cellulose and roughage, and to visualize the right consistency. It is helpful to give the patient samples to take home to guide him in the preparation of the food, especially if another person, to whom he must explain the instructions, prepares the diet. The diagram of the whole grain (Part I, Chapter 5, p. 56) will

show the patient why the refined cereals are used in this diet, and that enriched white bread is preferable to whole grain bread because it contains no roughage.

In this diet it is especially important to give the food in terms of the “Meal Plan for the Day,” in order to stress the regularity of the meals and feedings and the amounts of food that should be taken at one time. Foods that should be avoided because of their harmful effect on the ulcer are listed for the patient, and recipes may be given him, especially for preparations of milk, eggs and cereals. Equivalents give variety to the diet, but the choice of foods should be made with great care as the treatment limits so greatly foods containing certain vitamins and minerals. The record which the patient keeps of his food intake will help him to evaluate the effects of the diet in the improvement of his condition and will demonstrate the importance of adhering to it strictly. It will serve also as a basis for discussion of the principles of the treatment (Part I, Chapter 5).

Food allergy has been chosen as another illustration of the procedure used in teaching the patient, since it requires the omission of certain foods from the diet, although the food constituents are given in normal amounts.

The *physiology and pathology* of the body part affected cannot be explained and visualized so easily in food allergy as in other diseases, for it is difficult for the patient to understand the antagonism existing between antibodies in the body cells and the allergens of foods.

Dietary directions. The word “allergy” is usually new to the patient and should be spoken frequently and written several times. As in the normal diet the patient is shown by pictures how the body builds its own substance by transference to itself of like materials from food. It is ex-

plained to him, further, that sometimes certain foods are resisted by the body cells, which act against them, and symptoms such as those of which he complains are evidence that this is happening. Frequently a patient has found from his own observations that eating certain foods produced certain symptoms. In this connection the words "sensitive" and "allergic" may be introduced, and the patient understands that he is sensitive or allergic to those foods and must omit them from his diet because they produce the symptoms with which he is familiar and which indicate a disturbance in the body. Usually he asks whether he will ever again be able to eat these foods. He is told that when he has been free from symptoms for a long period he may take the foods again, one at a time, and in small amounts at first, to see if the body can tolerate them, that if any of the symptoms reappear the foods must again be immediately omitted, and that if the foods are tolerated, the amounts taken may be increased gradually until they assume their usual place in the diet. It is explained that when he is able to take these foods freely without symptoms, he has become "desensitized."

The word "tolerance" needs explanation. When the patient can take the foods to which he has been sensitive and show no symptoms, he is said to have gained a tolerance for them.

The foods used by the patient must meet the requirements of an adequate diet. If certain foods have to be omitted from the diet, the patient understands that foods must be substituted to supply equal amounts of the food constituents, or medication must be prescribed.

Just as in the case of the normal diet, the patient must know the body needs and the values of different foods as sources of the food constituents required

to fulfill these needs. If foods important to the adequacy of the diet must be omitted, the patient should know what food constituents they contribute to be able to select foods to replace them. Care must be taken in the choice of equivalents so that the patient will not make the error of choosing another food to which he is sensitive.

The patient is led to see, for example, that if he cannot take milk, the protein, calcium, phosphorus, vitamin A, thiamine and riboflavin that it contributes must be supplied by other foods, and that to ensure right amounts of vitamin D, sunlight and medication must be provided. He is then guided in the selection of equivalents for milk. He sees that cheese makes a good substitute, when allowed, since one ounce equals one cup of milk in all the food constituents except carbohydrate, thiamine, riboflavin, and macin. He finds that there is no other practical substitute than cheese in terms of calcium and phosphorus, and it may be necessary, therefore, to have medication. The protein may be supplied by meat, fish or poultry of the kinds to which he is not sensitive. He may use eggs to provide protein and vitamin A, thiamine and riboflavin. Or vitamin A may be supplied by butter or fortified oleomargarine. In looking for other sources of the vitamins, he finds that whole grain bread and cereals are valuable for thiamine, riboflavin and macin, and the enriched bread for thiamine and macin, and by choosing the kinds to which he is not allergic he may use them. Otherwise, he will have to depend for these vitamins upon the legumes, vegetables and fruits to which he is not sensitive—and these will also help to supply carbohydrate and minerals.

Foods to avoid are remembered with the help of a list of the foods that the patient is "Not to Eat." Special emphasis

s placed on the "hidden" foods, that is, foods to which the patient is sensitive but whose presence in a "made dish," or in certain foods purchased—as cereals, breads, oils, mayonnaise and others—is not evident and is not indicated by the trade name. Lists of these foods are given the patient,—for example, foods in which the egg is used, as certain sauces, breads, cakes, desserts and salad dressings. Samples of various foods should be available, especially samples of the "hidden" foods and foods less familiar to the average patient, to help to demonstrate to him what he may and may not eat.

"Food for the Day" is given in kinds and amounts of food that the patient can eat, with lists of equivalents and recipes to help him in choosing a diet sufficiently varied to satisfy his desires. Great care must be used, in giving equivalents, to be sure that when substitutions are made sufficient amounts of all the food constituents are present in the diet for the day. The patient is shown that to make the diet adequate he may have to eat larger than average servings of certain foods used as substitutes, because they contain the desired food constituents in smaller quantities.

Recipes using only the foods to which he is not sensitive are given to the patient to help him in the preparation of the diet and to gain his adherence to it. For example, when wheat is omitted, it is difficult to make a bread that is satisfactory to the patient because the flours from other cereals do not produce a good raised bread, and he does not easily become accustomed to bread made with baking powder or soda. Therefore, recipes are given for breads using flours and cereals to which he is not sensitive, and which usually must be prepared at

home because they can rarely be purchased. Frequently a patient will omit bread from the flours that are allowed him because he lacks the facilities or the inclination to prepare it. Suggestions for ways of using and preparing cereals are given to encourage him to use them. Also recipes for foods unfamiliar to him will sometimes help to encourage him to include them in the diet.

The cost of the diet may have to be increased when several of the more commonly used and cheaper foods must be omitted and it then becomes necessary to use the more expensive foods. Under such circumstances, in order to ensure the diet, it must be known whether the income will permit the purchase of these foods, especially when the diet is inadequate without them.

A record of the food intake (Food Diary) should be kept by the patient, and he should note any symptoms and the time at which they appear. This helps him to realize the importance of following his diet exactly. It helps also to estimate more accurately how well he understands the diet and how faithful he is in adhering to it (Part I, Chapter 5, p. 45).

Contributing factors, other than food, with which the patient makes contact within or without the home often cause or intensify symptoms. These must also be listed for him. The patient is asked, in his turn, to record with his food intake the circumstances under which symptoms occur. To assist him further to recognize environmental contacts to which he may be allergic, he is asked to make an inventory of the contents of the rooms or places in which he works, eats, sleeps, and plays, and this is closely studied in conference with him.

PART II

TABLES TO SIMPLIFY THE COMPUTATION OF THE DIET

FOREWORD

The tables assembled here will aid in the computation of diets. They can be used independently of the text, just as the engineer refers to tables of figures for help in solving his problems.

terms of the number of the food constituents they supply.

Throughout the world people use the same types of food, according to their availability,—breads and cereals, milk and milk products, eggs, meat and fish, vegetables and fruit. These foods differ in kind and in usage, in different countries, under the influence of geography, climate, history, transportation and technological progress of the country. But wherever physical and mental efficiency are maintained, it will be found that people have intuitively, through the ages, adopted a diet and dietary customs that provide sufficient amounts of the food constituents, in accordance with the standards given in these tables. Racial diets and food habits are described briefly in Table 4.

Sex, weight, height, age and activity need to be known to determine the dietary requirements. Therefore Tables 5-13 give weight height age measurements and energy requirements for the adult and for the child.

Table 14 gives abbreviations, and weights and measures of various units, to interpret data used throughout the book.

In the table of "Food Values and Measures in Terms of Average Servings of Food" (Table 15), average servings are given both in grams and household measures. The amounts given for household measures are approximate measurements. They have proved advisable as the patient

The first three of these tables furnish data fundamental in planning and computing diets. In Table 1 are listed the elements of which the body is composed, the substances that are present in food and the purpose of each of these food constituents in relation to body needs, and in the last column the foods that are sources of these food constituents. Reading from left to right on this page, one will see the composition of the body, the food constituents of like substances, and the foods that supply these substances. Or if one would wish to read from right to left in the evaluation of a food there would be found a list of foods supplying the various food constituents, the value of these foods in serving the body and the like substances in the body which they supply.

Table 2 gives the daily requirements of each food constituent, for adults and for children.

Tables 3 lists again the foods that are principal sources of the various food constituents, but in more complete form than in Table 1. Here the foods are grouped in columns under the names of the food constituents they contain, and arranged in such a way that a glance will show the values of particular foods in

can easily comprehend them and they more nearly represent his practice in the purchase and serving of foods. The figures for the amounts of the food constituents have been secured from authoritative sources, but it is well understood that they represent proximate analyses. The food values stated may not represent the exact composition of foods, because of certain errors that are inevitable in the analytical methods commonly used.¹ It is to be remembered also that foods are subject to natural variations in composition, the causes and extent of which are only just beginning to be investigated with adequate thoroughness.²

Nevertheless the great value of these data has been successfully demonstrated in the experience of many years. For more than a quarter of a century the tables of Atwater and Bryant have been recognized as the great scientific contribution to dietetics.³ In determining the figures for protein for practical use, these investigators accepted nitrogen as present in foods to the extent of 16 per cent of all proteins. On this authority the factor 6.25 has been used for the conversion of nitrogen to protein ($N \times 6.25$). But it was recognized that this value, designated as "total protein," is subject to two types of error. In the first place, all foods contain varying amounts of nitrogenous bodies that are not protein, as Atwater and Bryant pointed out, and further it cannot be assumed at the present time that all proteins contain 16 per cent

nitrogen. In experiments with a few foods, Jones determined the correct figures for the proteins and showed that the nitrogen present varied from 13 per cent to 19 per cent.⁴ In regard to these findings, Newburgh writes:

"Since the magnitude of the first source of error, that is the per cent of nitrogen in non protein forms, is known only for a few foods, these new factors cannot yet be successfully applied often enough to justify a change in the values for protein now in common use."⁵

"Many instances in which chemical studies of the amino acid composition of a protein were correlated with nutritional studies of its effectiveness in meeting the body's protein requirement have shown clearly that the nutritive value of a protein depends primarily upon the kinds and relative proportions of the amino acids into which it is resolved by digestion."⁶

In the determination of the total fat in foods, both fat, and the fat like substances extracted at the same time, are included. Newburgh makes allowance for this by using in his tables the inclusive term "lipids." In most analyses of foods the fat like substances are usually insignificant. Until more exact estimates are reached the present analyses can be used and interpreted as total fat, and the error can be considered negligible.

The earlier tables stated the figures for carbohydrate obtained "by difference,"—by adding the analytical data for water, fat, protein and ash and subtracting the sum from 100, assuming the remainder to be carbohydrate. This method is characterized by Newburgh as including

¹ This does not hold in the field of research where accuracy of figures is demanded for satisfactory results and the foods used in experimental amounts are carefully analyzed for their exact values.

² Sherman, *Chemistry of Foods and Nutrition* 6th ed. p. 561, Macmillan Co. 1941.

³ For a detailed description and discussion of the analytical methods on which these tables are based see Bulletin No. 23, Office of Experiment Stations, U. S. Dept. of Agriculture.

⁴ Circular 193 U. S. Dept. of Agriculture 1931.

⁵ Newburgh and MacKinnon, *The Practice of Dietetics* p. 100 Macmillan Co. 1934.

⁶ Sherman and Lanford, *Essentials of Nutrition* p. 90 Macmillan Co. 1943.

■ table for this procedure is also included (Table 54)

There ■ ■ table for the ketogenic diet, for the relation of carbohydrate to fat (Table 55), and also a table of the Food Content of Diets Modified According to Consistency (Table 56) . Another table shows the deviation from the normal diet for the overweight, underweight or normal weight diabetic patient, in grams of carbohydrate, protein and fat per kilogram of body weight (Table 57)

■ There are many variables that would

mitigate against exactness in fulfilling the food requirement, even if accurate figures were available . For example, the out-patient is not under strict control, and there are chances for error in the possible waste of food or in inexact measurements, or in methods of preparation, that would alter the values of the food intake . The patient's condition in response to the diet must be the real test for adequacy, pointing to such adjustments in the amounts of food prescribed as may be needful to accomplish the desired results

TABLE 1
THE RELATION OF FOOD TO THE BODY
 (The Body as a Builder of Its Own Substance)

The Composition of the Body	Food Constituents that Supply the Body Needs for Building and Functioning	Foods that Supply Food Constituents for the Body Needs
Carbon Hydrogen Oxygen	Carbohydrate The primary source and most readily available form of energy stored in the body and may be transformed into fat	Carbohydrate Bread, cereals, fruits, milk, sugar, vegetables
Nitrogen	Fat An additional source of energy, an essential constituent of body cells, chief form of food storage	Fat Butter, cheese, cream, egg yolk, fats, meats, milk, nuts, oil, vegetable fats
Sulphur	Protein Primarily for growth and maintenance of body tissue and also a source of energy	Protein Cereals, cheese, eggs, fish, legumes, meat, milk, nuts
Iron	Iron The essential element in hemoglobin, the oxygen carrying constituent of the blood	Iron Beans (dried), cereals (whole grain or enriched), egg yolk, fruits (dried), meat (especially liver and kidney), molasses, vegetables (green)
Calcium	Calcium and Phosphorus Essential for growth and maintenance of the skeletal structure (bones and teeth)	Calcium and Phosphorus Cereals (whole grain), cheese, eggs, fruit, milk, nuts, vegetables
Phosphorus	Calcium, Phosphorus, Iron and Other Minerals They maintain the proper fluid environment for cellular activity and are constituents of the body cells	Potassium Meat, potatoes, vegetables
Potassium Sodium Chlorine Iodine Copper Manganese Silicon Mercury Fluorine Zinc Aluminum and others		Sodium Chloride Salt Iodine Sea foods and foods from regions with an adequate supply of iodine in water and soil Manganese Beans (navy), beets, blueberries, peas (split), wheat bran, wheat (whole grain) Copper Beef liver, calf liver, chocolate, currants, mushrooms, oysters Other Minerals Supplied by above foods
Vitamin A	Vitamin A Essential for growth and health Maintains healthful condition of the skin and mucous membrane Helps to build teeth and bones Promotes normal vision Important for vision in dim light	Vitamin A Liver and fish liver oils Dairy products in which the fat is retained Fortified oleomargarine Fruits—apricots, peaches, cantaloupe Vegetables—green leafy and yellow

Continued on next page

TABLE 1--Continued

The Composition of the Body		Food Constituents that Supply the Body Needs for Building and Functioning	Foods that Supply Food Constituents for the Body Needs
Thiamine	Vitamins--Continued	Thiamine Essential to metabolism of carbohydrate Essential to nervous and muscular systems Contributes to good muscle tone Maintains and stimulates appetite Aids the regular bowel movement Essential for growth	Thiamine Meat particularly pork Milk Enriched or whole grain breads and cereals Vegetables--green leafy and legumes Fruits Nuts
Riboflavin		Riboflavin Promotes growth Helps to keep the skin healthy Essential to functioning of every body cell Helps eyesight Part of one of the essential enzyme systems	Riboflavin Milk Cheese and eggs Meat and fish Fruits Vegetables--green leafy Whole grain breads and cereals
Niacin		Niacin Promotes growth Necessary to keep skin and other tissues normal Part of one of the essential enzyme systems	Niacin Meat and fish Fruits Vegetables Whole grain and enriched breads and cereals Peanut butter
Ascorbic Acid		Ascorbic Acid Helps to build and maintain strength of walls of capillaries Essential for normal development of bones, teeth and gums Essential for normal growth Essential for maintaining integrity of connective tissue	Ascorbic Acid Citrus fruits Raw vegetables Tomato
Vitamin D		Vitamin D Helps the body to make the best use of calcium and phosphorus in building the bones and teeth Helps to prevent rickets Promotes growth	Vitamin D Fish liver oil Milk, especially irradiated milk, modified milk and metabolized milk Oily fish such as salmon, herring, sardines Egg yolk Butter Liver
		Water The fluid medium of the body necessary for its structure and functioning	Water Water and the water found in foods

TABLE II
APPROXIMATE AMOUNTS OF THE FOOD CONSTITUENTS NEEDED PER DAY FOR BODY BUILDING AND FUNCTIONING IN TERMS OF THE STANDARD OR OPTIMAL REQUIREMENTS*

	Protein		Carbohydrate	Calcium	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid	Vitamin D
	Grams per 100 grams weight	Fat									
Adults	3-5	1-2	4-6	0.8	12	5000	1800	2700	15	75	—
				0.8	12	5000	1800	2700	15	75	—
				1.5	20	6000	1800	2400	15	100	100-500
				2.0	20	8000	2200	3000	25	100	100-500
Children	2-3	2-3	6-10	1.0	0	1500	100	600	1	30	100-500
				1.0	7	2000	600	900	6	35	—
				1.0	8	2400	800	1200	8	40	—
				1.0	10	3000	1000	1500	10	60	—
				1.0	12	4500	1200	1800	12	75	—
Girls	2-3	2-3	6-10	1.3	15	5000	1100	2000	14	80	—
				1.0	15	5000	1200	1800	12	80	—
Boys	2-3	2-3	6-10	1.4	15	5000	1600	2400	18	90	—
				1.4	15	6000	2000	3000	20	100	—

Calories To estimate the total calories multiply the grams of carbohydrate and the grams of protein by 4 and the grams of fat by 9 and total the results

To secure the number of calories needed for light activity use the median figures for carbohydrate, protein and fat or moderate or greater activity increase either the carbohydrate or the fat or both (see Tables 11-13)

* The minimal or actual requirement is about 30 per cent below the standard given here The custom of allowing such a 50 per cent margin of safety in so-called dietary standards for body building material is now coming into more general use in the teaching of dietetics — Sherman Henry C. *Chemistry of Food and Nutrition* p. 511 Macmillan Co. 1932

* Minerals and vitamins recommended by Committee on Food and Nutrition of National Research Council—1911

* The amount of Vitamin D needed has not been determined for adults and older children but should be provided probably up to the minimum amount recommended for infants

APPLIED DIETETICS

FOODS THAT ARE					
Protein	Fat	Carbohydrate	Calcium	Phosphorus	Mine Iron
Milk Cheese *Egg Fish *Meat *Poultry	Milk Cheese Egg yolk Fish fat Meat fat Butter Cream Lard oil Margarine fortified	Milk Fruits Berries Citrus fruits Fig dried fruits	Milk Cheese Egg - Cream	Milk Cheese Egg yolk Fish Meat Poultry Cream	Milk Egg yolk Shell fish Meat Poultry
 Vegetables †Beans dried soy †Peas dried	 Vegetables Beans dried soy Peas dried Other vege tables	 Vegetables Beans dried snap soy Green leafy vegetables	 Vegetables Beans dried snap soy Cabbage Carrots Green leafy vegetables Peas fresh dried Potato Bread whole grain	 Vegetables Beans dried fresh soy Cabbage Carrots Green leafy vegetables Peas dried fresh	 Fruits Banana Berries Dried fruit Grapes Vegetables Beans dried fresh soy Green leafy vegetables Peas dried fresh
†Potato †Bread †Cereal	Potato Bread whole grain or enriched Cereal whole grain or enriched Cornmeal Crackers Flour Honey Macaroni Rice polished Sugar Tapioca Molasses	 Molasses	Cereal whole grain	Potato Bread whole grain or enriched Cereal whole grain or enriched	Total Cereal
†Nuts			Nuts	Molasses	

Complete protein
† Incomplete protein
‡ For Table of Food Values and Measures see Table 15

OF THE FOOD CONSTITUENTS†

Vitamins						
	A	Thiamine (B ₁)	Riboflavin (B ₂)	Niacin	Ascorbic Acid (C)	D
	Milk	Milk	Milk	Milk		Milk vitamin D added
	Cheese		Cheese			
	Egg	Egg	Egg	Egg		Egg yolk
			Fish	Fish		Fish fat
	Liver	Meat	Meat	Meat		Liver
	Butter	Poultry	Poultry	Poultry		Butter
	Cream					Fish liver oil
	Margarine fortified					
	Fruits	Fruits	Fruits	Fruits	Fruits	
	Apricots	Banana			Orange other citrus fruits	
	Cantaloup	Orange citrus fruits			Berries	
	Peaches	Pineapple				
	Prunes	Plums				
		Prunes				
	Vegetables	Vegetables	Vegetables	Vegetables	Vegetables	
	Beans snap	Asparagus	Beans	Beans	Cabbage raw	
	Green leafy vegetables	Beans dried	lima	soy	Carrot raw	
	Peas fresh	soy	Green leafy vegetables	Carrots	Green leafy vegetables	
	Tomato	Cabbage	less fresh	Green leafy vegetables	Green pepper	
	Yellow vegetables	Carrots		Peas fresh	Tomato	
		Green leafy vegetables				
		Peas fresh				
	Potato sweet	Potato	Potato	Potato	Potato	
		Bread whole grain or enriched	Bread whole grain or enriched	Bread whole grain or enriched		
		Cereal whole grain or enriched	Cereal whole grain or enriched	Cereal whole grain or enriched		
		Nuts	Nuts	Peanut butter		

SUMMARY NATIVE BACKGROUND AND FOOD HABITS OF SOME OF THE FOREIGN BORN AND THEIR AMERICAN ADJUSTMENTS

TABLE 4

ITALIANS

BACKGROUND

Geography and Climate (Immigration and preservation of food almost unknown due to geographical factors which make transportation etc difficult)		Native Food Habits	
Reasons for coming to this United States		I Cereals Bread Starches	
<ol style="list-style-type: none"> 1 Three sections northern central and southern or Italian 2 Good farming land vineyards 3 Warm climate similar to California 4 70 per cent of population work out of doors in fields and vineyards 5 Many laborers in southern section 6 Heavy taste 7 No educational opportunities 8 Large population 9 Opportunity in America 10 Report of relatives or friends already in the United States 		<ol style="list-style-type: none"> 1 Macaroni and spaghetti 2 Corn meal known as polenta a main dish 3 Bread flour for bread and macaroni is not refined ground whole grain being part Chestnut flour used in northern part 	
Character of People and Home Life		II Milk Cream Cheese Butter Eggs	
<ol style="list-style-type: none"> 1 Hot blooded temperamental 2 Frivolous water to plimouth 3 Artistic fond of good music art and everything 4 Father in head of family getting first of 5 Mother chief place in life as to cook and care of family and have as many children as possible 6 Drinking superstitious and often poor 7 Women time getting meals and spend much 8 Roman Catholic 		<ol style="list-style-type: none"> 1 Milk is used mainly as cheese 2 Cheese in abundance especially hard 3 No cream 4 No butter 5 Eggs fried or in soups 	
		<ol style="list-style-type: none"> 1 Are learning to use more milk for children to drink but not enough is used 2 Do not like American cheese and as imported cheese is expensive they do not 3 No cream 4 Will get butter to children 5 Eggs fried plain or with peppers spinach etc 	
		<ol style="list-style-type: none"> 1 Corn meal polenta used as main dish 2 oatmeal wheatena farina etc 3 Macaroni and spaghetti in many shapes and forms 4 Sauces and dressings in many shapes 5 White bread very crumbly 6 more bread very crumbly 7 Are using more Italian whole-wheat bread than formerly 	

NATIVE BACKGROUND AND FOOD HABITS (Continued)

SUMMARY

NATIVE BACKGROUND AND FOOD HABITS (Continued) NEAR EAST—ARMENIA, SYRIA, TURKEY, GREECE

BACKGROUND

<p>1 Fully elevated countries with many mountains, tablelands and foothills making communication and transportation difficult. No railroads. Use caravans.</p> <p>2 Fertile grazing and fertile farming land in fertile March to November raising own food.</p> <p>3 Mild climate. People live out of doors.</p>	<p>1 Persecution by the Turks in the name of Mohammed.</p> <p>2 Parts of Armenia and Syria are Christianized.</p> <p>3 Few Ash masses.</p> <p>4 Men already here have come in except as men already here have returned home to marry.</p> <p>5 Friendly neighborly races.</p> <p>6 Lack of excise as rugs and carpets, sumac, copper, etc. are rugs and carpets put so much and brass. Rugs are so important because people live in mud huts. Use rugs a great deal.</p> <p>7 Women good cooks.</p> <p>8 United family life.</p>	<p>1 Cracked whole wheat (Bougour) and rice used plain or with meat or nuts and vegetables. Sometimes as a cereal.</p> <p>2 Dried as same as that used in time of first baked (on griddles in round ovens) (Greek). Finely ground whole wheat is used.</p>	<p>1 Cracked wheat and rice used with meat or nuts and vegetables.</p> <p>2 Fill up children every for breakfast griddles same as in old country.</p>
<p>1 Milk in form of a thick sour milk (goat's milk) (Syrian)</p> <p>2 Matzoon (Armenian)</p> <p>3 No cream and hard cheeses</p> <p>4 Butter made of sheep's milk</p>		<p>1 Do not use enough milk. Are suspicious of bottled milk. Pasturized milk does not make such good Matzoon.</p> <p>2 Soft milk and hard cheeses used somewhat.</p> <p>3 No cream butter—will give both milk and butter to children when urged.</p>	
<p>1 Abundance of vegetables stuffed with wheat or rice and meat or nuts, and squash with oil and lamb broth.</p> <p>2 Salads, tomatoes, grape leaves, cucumbers, etc.</p> <p>3 Free use of olive oil and vinegar and dates, figs, oranges, etc.</p>		<p>1 Plenty of vegetables used if money permits. These are stuffed with meat or rice with oil and beans etc. Then cooked with oil and lamb broth. Then serve cucumbers, cabbage and grape leaves.</p> <p>2 Few fruits except dried apricots, raisins, etc.</p>	

FACTORS INFLUENCING CONDITIONS IN
URBAN STATES

These people do not become laborers to a great extent. They live in small houses, fruit trees and vegetable gardens are raised, and they are not dependent on the market for their food. They are not dependent on the market for their food without outside-door work here. If they are usually independent although high cost of living often results in poverty, lack of education, high in fat and starch and low in fresh vegetables, fruit and milk. Have been found to be overweight and some malnutrition and some constipation.

IV MEATS AND MEAT SUBSTITUTES

- 1 Lamb (Kash) is only meat used to any extent. It is usually barbecued or fried in oil. Or is combined with cracked wheat or rice and stuffed into vegetables.
- 2 Nuts are used with cracked wheat or rice in place of meat (p. 200) or stuffed into somewhat.
- 3 Dried beans peas and lentils used somewhat.
- 4 Dried peas beans lentils used somewhat.

V SWEETS

- 1 Honey used for sweetening. Molasses made from grapes.
- 2 Few sweets except on special occasions.
- 3 Paklava (pastry with nuts and honey).
- 4 Fruit composites.
- 5 Fruit candies and Turkish paste.

VI MISCELLANEOUS—ONLY SPICES

- 1 Sheep's butter.
- 2 Olive oil used a great deal.
- 3 Many and varied spices in combination.
- 4 Turkish coffee.

- 1 Both honey and sugar used for sweetening.
- 2 Use few sweets.
- 3 Fruit composites.
- 4 Paklava (pastry with nuts and honey) or shredded wheat with nuts and honey.
- 5 Bread and honey with cream can be bought at restaurants and bakeries.
- 6 Apricot candy Turkish paste.

SUMMARY

NATIVE BACKGROUND AND FOOD HABITS (Continued)

NEAR EAST—ARMENIA, SYRIA, TURKEY, GREECE

BACKGROUND		FOOD HABITS	
		NATIVE	IN AMERICA
GEOGRAPHY AND CLIMATE (Refrigeration and preservation of food aside from some drying and pickling are almost unknown due to geographical factors which make transportation etc difficult)	<ol style="list-style-type: none"> 1 Fairly elevated countries with many mountain tablelands and foothills making communication and transportation difficult. No railroads. Use caravans. 2 Fine grazing and fertile farming land. Rich in minerals. 3 Mild climate. People live out of doors in tents March to November raising own food. 	I CEREALS BREADS STARCHES	
		<ol style="list-style-type: none"> 1 Cracked whole wheat (bourghour) and rice used plain or with meat or nuts and vegetables. Sometimes as a cereal. 2 Bread is same as that used in time of Christ baked on griddles in round flat loaves also in coarse loaves even baked (Greece) Finely ground whole wheat is used. 	
REASONS FOR COMING TO THE UNITED STATES (Emigrants from all countries are almost entirely from the peasant or land working class. This is the group we are discussing here.)	<ol style="list-style-type: none"> 1 Persecution by the Turks in the name of Mohammed. 2 Syria are Christianized hence the Turkish massacres. 3 Few women have come in except as men already here have returned home to marry. 	II MILK CREAM CHEESE BUTTER LOGS	
		<ol style="list-style-type: none"> 1 Milk in form of a thick sour milk (goat's milk) Leban (Syrian). 2 Maizoon (Armenian). 3 Sour milk and hard cheeses. 4 No cream. 5 Butter made of sheep's milk. 	
CHARACTER OF PEOPLE AND HOWELIFE	<ol style="list-style-type: none"> 1 Friendly neighborly races. 2 Masters of exquisite rugs and etched and tooled copper and brass. Rugs as same importance, because people live out so much and have little use for furniture. Use rugs a great deal. 3 Women good cooks. 4 United family life. 	III VEGETABLES AND FRUITS	
		<ol style="list-style-type: none"> 1 Abundance of vegetables stuffed with wheat or rice and meats or nuts, and cooked with oil and lamb broth (squash, pepper, grape leaves, cucumbers, tomatoes, eggplant, etc.). 2 Salads with oil and vinegar and free use of olives. 3 Semi-tropical fruits: abundance (grapes, dates, figs, oranges, etc.). 	

SUMMARY
NATIVE BACKGROUND AND FOOD HABITS (Continued)
JEWISH PEOPLE—FROM RUSSIA, POLAND, GERMANY

BACKGROUND		FOOD HABITS	
GEOGRAPHY AND CLIMATE (Refrigeration and preservation of food aside from some drying and pickling are almost unknown due to geographical factors making transportation etc difficult)	REASONS FOR COMING TO THE UNITED STATES (Emigrants from all countries are almost entirely from the peasant or land working class. This is the group we are discussing here)	NATIVE	IN AMERICA
1 Russia Poland Germany 2 The Jewish race originated in Palestine and after the fall of the Temple they went all over the world driven from one country to another. Jews are loyal to the country of their adoption 3 Depending upon country from which they come. Since 1800 large percentages of Jews came from Russia and Poland. Before that many came from Germany 4 Precipitation (note present conditions in Germany) 5 Lack of educational opportunities etc 6 Lure of America land of liberty and opportunity	1 Although scattered over the earth the Jews are very race conscious 2 Very close and beautiful home life. Emphasis on spiritual things 3 Unusually bright and intelligent as a whole 4 Ambitious somewhat emotional people especially the Russian Jew 5 Characteristic moulded by religious precepts and difficult in generations driven from one place to another	I CEREALS BREADS STARCHES	
		1 Barley Kasha (buckwheat) in soups 2 Corn meal cakes (Polish) 3 Noodles and other egg and flour mixtures 4 Dark rye bread (Russian and German) 5 Pumpnickel (German and Russian) 6 Unleavened bread (matzoth) at Passover	
		II MIX CREAM CHEESE BUTTER EGGS	
		1 Use of milk dependent on country and workers usually have abundance of milk 2 Cream cheese and cottage in pot cheese 3 Sour cream on vegetables berries and in soups 4 Sweet butter 5 Eggs in soups noodles etc	
		III VEGETABLES AND FRUITS	
		1 Root vegetables (onions beets turnips), cabbage etc cooked with meats and in soups (Borsch) 2 Some raw vegetables as lettuce, tomatoes cucumbers eaten with sour cream when available 3 Dried fruits (prunes, figs, peaches, pears cherries and apples) 4 Pickled and salted vegetables (onions, beets, tomatoes sauerkraut etc)	
		1 Root vegetables used in soups (Borsch) and with meats 2 Raw vegetables (lettuce cucumbers tomatoes etc) used frequently 3 Use potatoes with meat 4 Dried fruits — oranges apples pears grapes plums etc 5 Pickled and salted cucumbers tomatoes relishes etc	

FACTORS INTERFERING CONDITIONS IN THE UNITED STATES RELIGIOUS LAWS

FACTORS INTERFERING CONDITIONS IN THE UNITED STATES RELIGIOUS LAWS

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2 **Trials** few who in labor log j l Ho o
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4 **Trials** few who in labor log j l Ho o
5 **Trials** few who in labor log j l Ho o
6 **Trials** few who in labor log j l Ho o
7 **Trials** few who in labor log j l Ho o
8 **Trials** few who in labor log j l Ho o
9 **Trials** few who in labor log j l Ho o
10 **Trials** few who in labor log j l Ho o

IV MEATS AND MEAT BY RECIPES

1 Meat poultry chicken killed a d pro-
2 Meat poultry chicken killed a d pro-
3 Meat poultry chicken killed a d pro-
4 Meat poultry chicken killed a d pro-
5 Meat poultry chicken killed a d pro-
6 Meat poultry chicken killed a d pro-
7 Meat poultry chicken killed a d pro-
8 Meat poultry chicken killed a d pro-
9 Meat poultry chicken killed a d pro-
10 Meat poultry chicken killed a d pro-

V SWEETS

1 Rich pastry rolled with nuts and fruits
2 Rich pastry rolled with nuts and fruits
3 Rich pastry rolled with nuts and fruits
4 Rich pastry rolled with nuts and fruits
5 Rich pastry rolled with nuts and fruits
6 Rich pastry rolled with nuts and fruits
7 Rich pastry rolled with nuts and fruits
8 Rich pastry rolled with nuts and fruits
9 Rich pastry rolled with nuts and fruits
10 Rich pastry rolled with nuts and fruits

VI MISCELLANEOUS—OILS SPICES

1 Chicken fat used e tons ely
2 Oil used some Flaxseed oil (Pol h)
3 Seasonings and many r laben (Horse-
radish used somewhat)

FACTORS INTERFERING CONDITIONS IN THE UNITED STATES RELIGIOUS LAWS

1 **Gen 49** Noah talking animals from the
2 **Gen 49** Noah talking animals from the
3 **Gen 49** Noah talking animals from the
4 **Gen 49** Noah talking animals from the
5 **Gen 49** Noah talking animals from the
6 **Gen 49** Noah talking animals from the
7 **Gen 49** Noah talking animals from the
8 **Gen 49** Noah talking animals from the
9 **Gen 49** Noah talking animals from the
10 **Gen 49** Noah talking animals from the

[illegible]

Height		Men									
Ft	In	Weights according to Age Period in Pounds									
		15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	
5	0	113	119								
5	1	115	121	124	127	129	131	132	134	135	
5	2	118	124	126	129	131	133	134	136	137	
5	3	121	127	128	131	133	136	139	141	140	
5	4	124	131	131	134	136	139	142	144	143	
5	5	128	135	134	137	140	146	148	145	146	
5	6	132	139	138	141	144	150	152	153	150	
5	7	136	142	142	145	148	154	156	157	158	
5	8	140	146	146	149	152	159	161	162	163	
5	9	144	150	154	158	162	164	166	167	168	
5	10	148	154	158	163	167	169	171	172	173	
5	11	153	158	163	168	172	175	177	178	179	
6	0	158	163	169	174	178	181	183	184	185	
6	1	163	168	175	180	184	187	190	191	192	
6	2	168	173	181	186	191	194	197	198	199	

Height		Women									
Ft	In										

Height		Women								
		Weights according to Age Period in Pounds								
Ft	In	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	
5	0	115	118	121	124	128	131	133	134	
5	1	117	120	123	126	129	133	135	137	
5	2	120	122	125	128	132	136	138	140	
5	3	123	125	128	132	136	139	141	143	
5	4	126	129	132	136	140	142	144	146	
5	5	129	132	136	140	143	146	148	150	
5	6	133	136	140	144	147	151	152	153	
5	7	137	140	144	148	151	155	157	158	
5	8	141	144	148	152	155	159	162	163	
5	9	145	148	152	156	159	163	166	167	
5	10	149	152	155	159	162	166	170	173	
5	11	153	155	158	162	166	170	174	177	
6	0	157	159	162	165	169	173	177	182	

The height includes ordinary shoes and the weight includes ordinary underclothing.

From the publications of the Metropolitan Life Insurance Company.

157	158	159	160	161	162	163	164
158	159	160	161	162	163	164	165
159	160	161	162	163	164	165	166
160	161	162	163	164	165	166	167
161	162	163	164	165	166	167	168
162	163	164	165	166	167	168	169
163	164	165	166	167	168	169	170
164	165	166	167	168	169	170	171
165	166	167	168	169	170	171	172
166	167	168	169	170	171	172	173
167	168	169	170	171	172	173	174
168	169	170	171	172	173	174	175
169	170	171	172	173	174	175	176
170	171	172	173	174	175	176	177
171	172	173	174	175	176	177	178
172	173	174	175	176	177	178	179
173	174	175	176	177	178	179	180
174	175	176	177	178	179	180	181
175	176	177	178	179	180	181	182
176	177	178	179	180	181	182	183
177	178	179	180	181	182	183	184
178	179	180	181	182	183	184	185
179	180	181	182	183	184	185	186
180	181	182	183	184	185	186	187
181	182	183	184	185	186	187	188
182	183	184	185	186	187	188	189
183	184	185	186	187	188	189	190
184	185	186	187	188	189	190	191
185	186	187	188	189	190	191	192
186	187	188	189	190	191	192	193
187	188	189	190	191	192	193	194
188	189	190	191	192	193	194	195
189	190	191	192	193	194	195	196
190	191	192	193	194	195	196	197
191	192	193	194	195	196	197	198
192	193	194	195	196	197	198	199
193	194	195	196	197	198	199	200
194	195	196	197	198	199	200	201
195	196	197	198	199	200	201	202
196	197	198	199	200	201	202	203
197	198	199	200	201	202	203	204
198	199	200	201	202	203	204	205
199	200	201	202	203	204	205	206
200	201	202	203	204	205	206	207
201	202	203	204	205	206	207	208
202	203	204	205	206	207	208	209
203	204	205	206	207	208	209	210
204	205	206	207	208	209	210	211
205	206	207	208	209	210	211	212
206	207	208	209	210	211	212	213
207	208	209	210	211	212	213	214
208	209	210	211	212	213	21	

TABLE 6
CONVERSION OF POUNDS TO KILOGRAMS

TABLE 6
CONVERSION OF POUNDS TO KILOGRAMS

Pounds	Kilograms	Pounds	Kilograms	Pounds	Kilograms	Pounds	Kilograms	Pounds	Kilograms
22	10	55	25	105	48	140	64	175	79
25	11	60	27	110	50	145	66	180	82
30	13	65	29	115	52	150	68	185	84
35	16	70	32	120	55	155	70	190	86
40	18	75	34	125	57	160	73	195	89
45	20	85	39	130	59	165	75	200	91
50	22	95	43	135	61	170	77		

1 kilogram = 2.2 pounds
To convert pounds to kilograms divide the

1 kilogram = 2.2 pounds
To convert pounds

To convert pounds to kilograms divide the pounds by 2.2

TABLE 7
WEIGHT HEIGHT AGE TABLE FOR BOYS OF SCHOOL AGE†

Height (Inches)	Average Weight for Height (Pounds)	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years	11 Years	12 Years	13 Years	14 Years	15 Years	16 Years	17 Years	18 Years	19 Years
38	34	34	34													
39	35	35	35													
40	36	36	36													
41	38	38	38	38												
42	39	39	39	39	39											
43	41	41	41	41	41*											
44	41	41	41	41	41											
45	46	46	46	46	46	46										
46	48	47	48	48	48	48										
47	50	49	50	50	50	50	50									
48	53		52	53	53	53	53									
49	55		55	55	55	55	55	55								
50	58		57	58	58	58	58	58*	58							
51	61			61	61	61	61	61	61							
52	64			63	64	64	64	64	64							
53	68			66	67	67	67	67	68*	64*						
54	71				70	70	70	70	71	71	72					
55	74				72	72	73	73	74	74	74*					
56	78				75*	76	77	77	78	78	78					
57	82					79	80	81	81	82	83	80*				
58	85					83	84	85	85	86	87	83*				
59	89						87	88	89	90	90	90	90			
60	94						91	92	92	93	94	95	96			
61	99							95	96	97	99	100	103			
62	104							100*	101	102	103	104	107	106*		
63	111							105	106	107	108	110	113	118	123	
64	117								109	111	113	115	117	121	126	127
65	123								114	117	118	120	122	127	131	134
66	129									119	122	125	128	132	136	139
67	133									121*	123	130	134	136	139	142
68	139										134	134	137	141	143	147
69	144										137	139	143	146	149	152
70	147										143	144	145	148	151	155
71	152										148*	150	151	152	154	159
72	157											153	155	156	158	163
73	163											157*	160	162	164	167
74	169											160*	164	168	170	171

Age Years	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Average height in														
Short	43	45	47	49	51	53	54	56	58	60	62	64	65	69
Medium	46	48	50	52	54	56	58	60	63	65	67	68	69	69
Tall	49	51	53	55	57	59	61	64	67	70	72	72	73	73
Average annual gain pounds														
Short	3	4	5	5	5	4	8	9	11	14	13	7	3	
Medium	4	5	6	6	6	7	9	11	15	11	8	4	3	
Tall	5	7	7	7	7	8	12	16	11	9	7	3	4	

Note—In order to extend the range of the tables so as to include weights of children who are taller or shorter than those in these groups there have been added as starred figures estimated weights. All the other weights represent averages for each inch in height and age of the children observed in this study.
† Prepared by Bird T. Baldwin, Ph.D. and Thomas D. Wood, M.D. Reprinted by permission of the American Child Health Association.

TABLE 8
WEIGHT HEIGHT-AGE TABLE FOR GIRLS OF SCHOOL AGE†

Height (Inches)	Average Weight for Height (Pounds)	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years	11 Years	12 Years	13 Years	14 Years	15 Years	16 Years	17 Years	18 Years
38	33	33	33												
39	34	34	34												
40	36	36	36	36*											
41	37	37	37	37*											
42	39	39	39	39*											
43	41	41	41	41	41*										
44	42	42	42	42	42*										
45	45	45	45	45	45	45*									
46	47	47*	47	47	48	48*									
47	50	49*	50	50	50	50	50*								
48	52		52	52	52	52	53*	53*							
49	55		54	54	55	55	56	56*							
50	58		56*	57	58	58	59	61	62*						
51	61			59	60	61	61	63	65						
52	64			63*	64	64	64	65	67						
53	68			66*	67	67	68	68	69	71*					
54	71				69	70	70	71	71	73*					
55	75				72*	74	74	74	75	77	78*				
56	79					76	78	78	79	81	83*				
57	84					80*	82	82	82	84	85	92*			
58	89						84	86	88	88	93	96*	101*		
59	95						87	90	90	92	96	100	103*	104*	
60	101						91*	95	95	97	101	105	108	109	111*
61	108							99	100	101	105	108	112	113	116
62	114							104*	105	106	109	113	116	117	118
63	118								110	110	112	116	117	119	120
64	121								114*	115	117	119	120	122	123
65	125								118*	120	121	122	123	125	126
66	129									124	124	125	128	129	130
67	133									128*	130	131	133	133	135
68	138									131*	133	135	136	138	138
69	142									135*	137*	137*	138*	140*	142*
70	144										136*	138*	140*	142*	144*
71	145										138*	140	142*	144*	145
Age years		6	7	8	9	10	11	12	13	14	15	16	17	18	
Average height, inches		43	45	47	49	50	52	54	57	59	60	61	61	61	
Short		43	45	47	49	50	52	54	56	58	60	62	64	64	64
Medium		47	50	53	55	57	59	62	64	66	66	66	67	67	67
Tall															
Average annual gain															
pounds															
Short		4	4	4	5	6	6	10	13	13	10	7	2	1	
Medium		5	5	6	7	8	10	13	13	10	6	4	1	1	
Tall		6	8	8	9	11	13	9	8	4	4				

† Prepared by Bird T. Baldwin, Ph.D. and Thomas D. Wood, M.D. Reprinted by permission of the American Child Health Association

TABLE 9
DETERMINATION OF BASAL ENERGY REQUIREMENT
DuBois Body Surface Chart
(As prepared by Boothby and Sandiford of the Mayo Clinic)

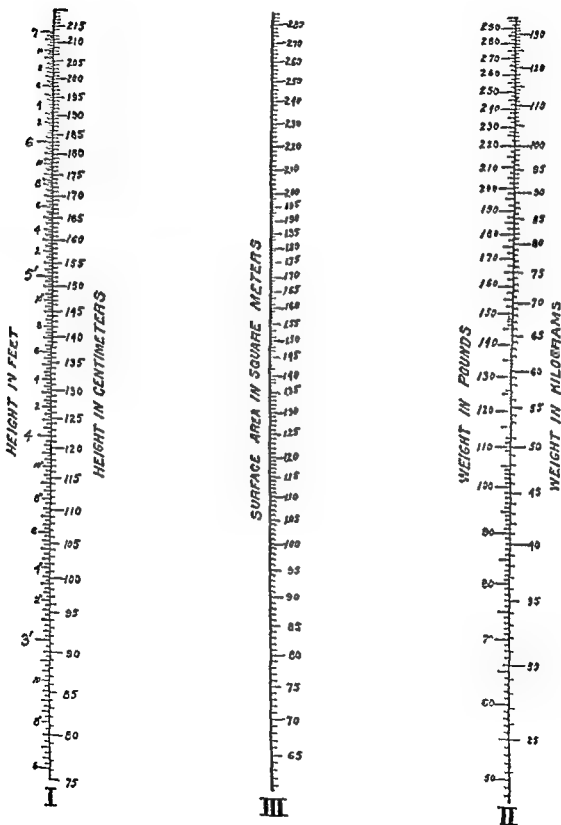


TABLE 10

DETERMINATION OF BASAL ENERGY REQUIREMENT

The Dubois Normal Standards* as Modified by Boothby and Sandisford (From the Mayo Clinic) *Prehm Report Ann J Physiol* 1929, 90 291

Calories per Square Meter per Day

Age	Males	Females	Age	Males	Females
5	1272	1238	20-24	984	886
6	1265	1217	25-29	967	878
7	1248	1162	30-34	955	869
8	1229	1154	35-39	931	859
9	1210	1126	40-44	919	847
10	1188	1099	45-49	907	840
11	1166	1070	50-54	893	828
12	1147	1042	55-59	878	818
13	1130	1028	60-64	864	811
14	1109	984	65-69	847	802
15	1087	950	70-74	(835)	(787)
16	1073	924	75-79	(820)	(775)
17	1049	898			
18	1030	895			
19	1010	892			

* For convenience the Calories for the day have been given rather than Calories per hour as in the original table

Directions

To determine the Basal Requirement use Body Surface Chart, Table 9

Draw a line through the person's Height found in Column I and through the Weight in Column II

Using a straight edge draw a line between these two points

Read the Body Surface Area where this line intersects Column III

Refer to Table 10 using the age (nearest birthday) and sex read the calories needed per square meter per day multiply the surface area by this figure

The result is the Basal Energy Requirement in calories per day for the average person of this height weight age and sex

TABLE 11
ENERGY REQUIREMENT—ADULTS

Calories per Day for Various Grades of Activity per kilogram of Body Weight

	Basal or Rest	Minimal	Very Light	Light	Moderate	Hard	Severe	Very Severe
	Occupation							
		Bedrest	Seamstress (hand) Typist Tailor	Seamstress (machine) Bookbinder Shoemaker Garment Worker Salesman Office Clerk Teacher	Laundress (moderate) Metal worker Furniture painter Housewife	Housemaid Carpenter Laundress (hard) Mechanic Truckman House worker	Stonemason Laborer Mason	Man sawing wood Fireman
Calories per kilogram of body weight per day								
Range	20 to 25	27.5	30-35	35-40	40-45	45-50	50-70	70-
Typical average weight								
M 70 kgm			32.5	37.5	42.5	47.5	60-	
F 60 kgm								
Per cent increase over basal Calories		10	25	50	75	100	150	200

Based on figures from Lusk, Graham, *Science of Nutrition*, W. H. Saunders, 1928.

TABLE 12
ENERGY REQUIREMENT OF CHILDREN
TOTAL CALORIES FOR CHILDREN IN TERMS OF BODY WEIGHT*

Age in Years	Calories per kilogram		Calories per Pound	
1-2	100-90		45-50	
3-5	90-80		40-35	
6-9	80-70		36-32	
10-13	70-60		32-27	
	Boys	Girls	Boys	Girls
14-15	60-55	50-45	27-25	23-20
16-17	60-55	45-40	27-25	20-18
18-19	55-50	40-35	25-23	18-16

* Rose *Foundations of Nutrition*, Macmillan Co., 1933

TABLE 13
ENERGY REQUIREMENT OF CHILDREN
DAILY ENERGY ALLOWANCES DURING PERIOD OF GROWTH

Age of Individual (nearest birthday)	Boys		Girls	
	Average Caloric Intake of Moderately Active Boys*	Range in Requirement Based on Average Weight†	Average Caloric Intake of Moderately Active Girls	Range in Requirement Based on Average Weight†
1 year		900-1200		800-1000
2 years		1100-1300		1000-1250
3 years	1270	1100-1400	1245	1050-1350
4 years	1429	1200-1500	1362	1150-1400
5 years	1599	1300-1600	1532	1200-1500
6 years	1771	1500-1900	1641	1450-1800
7 years	1918	1600-2100	1757	1500-1900
8 years	2092	1700-2300	1867	1600-2200
9 years	2287	1900-2500	1932	1800-2400
10 years	2333	2100-2700	2001	1900-2600
11 years	2406	2100-2800	2096	2000-2800
12 years	2417	2300-3000	2185	2100-3000
13 years	2522	2500-3500	2381	2300-3400
14 years	2786	2600-3800	2409	2400-3000
15 years	3068	2700-4000	2337	2400-2800
16 years	3330	2700-4000	2285	2200-2800
17 years	3524	2700-3800	2122	2100-2800
18 years	3613			

* White House Conference on Child Health and Protection, *Growth and Development of the Child*, Part III, Nutrition, The Century Co., 1932

† Rose, *A Laboratory Handbook for Dietetics* 4th Ed., Macmillan Co., 1937

TABLE 14

TABLE OF HOUSEHOLD WEIGHTS AND MEASURES*

1 quart	= 4 cups and weighs about 960 grams
1 cup	= $\frac{1}{2}$ pint = 240 grams = 8 fluid ounces
2 cups	= 1 pint
2 pints	= 1 quart
1 teaspoon	= 5 grams
1 dessert spoon	= 10 grams
1 tablespoon	= 15 grams
3 teaspoons	= 1 tablespoon
10 tablespoons	= 1 cup (standard measurement)

* All measurements are level

A rounded spoonful approximates usually 2 level spoonfuls
 A heaping spoonful approximates usually 3 level spoonfuls

TABLE OF METRIC WEIGHTS

1 gram	= $\frac{1}{16}$ ounce (28.35 exact measurement)
$\frac{1}{1000}$ gram (0.001)	= 1 milligram
1 milligram	= 1000 micrograms
$\frac{1}{1000000}$ gram	= 1 microgram (1 gamma)
1 kilogram	= 1000 grams

To convert ounces to grams multiply the ounces by 30 (28.35 grams = 1 ounce)

To convert pounds to kilograms divide the pounds by 2.2

To convert kilograms to pounds multiply the kilograms by 2.2

APPROXIMATE WEIGHTS AND MEASURES OF FOODS

30 grams = 1 ounce = 2 tablespoons of the following

Barley, pearl dry	Lemon juice	Orange juice
Beans lima dried	Milk skim	Peas dried
Beans navy dried	Milk whole	Rice
Butter	Molasses	Sugar granulated
Buttermilk	Oil	Tapioca minute or pearl
Cream		

30 grams = 1 ounce = 3 tablespoons of the following

Cornmeal dry	Cornstarch	Wheat cream of dry
--------------	------------	--------------------

30 grams = 1 ounce = 4 tablespoons of the following

Flour white sifted	Cocoa	Oats rolled dry
--------------------	-------	-----------------

30 grams = 1 ounce = 5 tablespoons of the following

Cocoanut dried

APPLIED DIETETICS

TABLE 14—Continued
ALCOHOLIC EQUIVALENTS

1 Cordial glass (fluid)	= 20 c c
1 Brandy glass (fluid)	= 30 c c
1 Sherry glass (fluid)	= 30 c c
1 Wine glass (fluid)	= 100 c c
1 Cup	= 240 c c

VITAMIN UNITS

1 International Unit of Vitamins A or D	= 1 United States Pharmacopeia Unit
1 Milligram of Thiamine	= 333 International Units
1 Milligram of Ascorbic Acid	= 20 International Units

Key United States Pharmacopeia—U S P
International Units—I U
Milligram—mg
Microgram— γ (gamma)
International Unit The content of vitamin in foods in terms of the activity of a definite quantity of a substance as a standard of reference, established by the Health Organization of the League of Nations

ABBREVIATIONS

av	average	hp	heaping	s d	sauce dish
b	biscuit	J	juice		5½" over all
c	cup	L	large		3¼" across the bottom
(C)	canned	lvs	leaves		1½" deep
ck	cooked	m	medium	sl	slice
cu	cube	oz	ounce	sm	small
d	diameter	p	piece	sq	square
enr	enriched	pt	pat	st	stalk
g	grams	r	rounded	str	strained
gl	glass	s	serving	t	teaspoon (level)
gr	grated	sc	scant	T	tablespoon (level)
H	half			wh	whole

AVERAGE SERVINGS*

	Household measure	Grams
Bread	1 slice	30
Cereals dry	½ cup	30
Cheese	2 tablespoons	30
Fruits dried		30
Fruits, fresh		100
Milk		240
Meat fish or poultry		90
Vegetables fresh	1 glass or cup	100
Vegetables dried (legumes)	3 ounces	30
	1 sauce dish	

* These amounts of food are the average servings referred to throughout the Tables and the Typical Diets and Menus

TABLE 15

FOOD VALUES AND MEASURES IN TERMS OF AVERAGE SERVINGS OF FOOD

The values for carbohydrate, protein and fat were computed to the second decimal place and then rounded to the nearest whole or half gram, if desired the half gram may be disregarded. The calories were taken from three sources and rounded to the nearest whole number. The vitamins from all sources varied so much an attempt was made to take figures that were most conservative and consistent. When a range was given the median was used. See p. 109 for references.

Gr ma	Foods	Household Measure	Grams			Calories	Grams		Mgm	I U	Micro-grams		Multi-grams		I U	
			Carbohydrate	Protein	Fat		Calcium	Phosphorus			Vitamin A	Thiamine	Riboflavin	Niacin		Ascorbic Acid
Beverages																
40	Cider Sweet	1 qt	30 0			170	0 010		0 6	13*	80	70				
190	Coca-Cola	1 bottle 8 oz	21 5			88										
11	Coffee	2 T														
140	Ginger ale	1 qt	21 5			88										
190	Grape Juice	1 qt	22 0	0 5		90	0 012	0 012	0 4		11	11		2		
4	Tea	1 t														
Beverages Alcoholic																
230	Ale American	1 qt 8 oz	8 0	1 0	9 0	99										
230	Beer average	1 qt 8 oz	9 0	1 5	10 0	112										
30	Brandy average	1 brandy gl			10 5	74										
20	Crene de Menthe	1 cordial gl	7 0		6 0	0										
30	Curacao	1 cordial gl	4 0		6 0	74										
30	Gin	1 brandy gl			10 5	74										
30	Rum	1 brandy gl			10 5	74										
30	Whiskey Scotch	1 brandy gl			10 5	74										
100	Wine California red	1 wine gl	0 5		10 0	72	0 009	0 015	0 3							
100	Wine California white	1 wine gl	4 0		10 5	90	0 009	0 015	0 3							
100	Wine champagne	1 wine gl	3 0		11 0	89										
30	Wine port	1 sherry gl	4 0		4 5	48										
30	Wine sherry	1 sherry gl	2 5		4 5	4										
Bread and Flour Products																
—	Biscuits baking powder	1 21 d	12 5	2 0	4 0	94	0 018	0 077	0 2	99	88	88	0 22			
11	Bread Boston Brown	1 al	18 0	2 5	2 0	100	0 057	0 083	1 3			44	21			
30	Bread cracked wheat	1 al	12 5	2 5	1 0	69	0 013	0 035	0 4			90	4			
30	Bread rye dark	1 al	15 0	2 0	0 5	73	0 005		0 3			11	18			
30	Bread rye light	1 al	18 0	2 5	0 5	79	0 007	0 044	0 5			40	10			
30	Bread white enriched (min.)	1 al	16 0	2 5	0 5	79	0 070	0 030	0 3			66	5	0 27		
11	Bread whole wheat	1 al	15 0	3 0	0 5	77	0 015	0 045	0 6			96	54	0 6		
60	Doughnuts	1 L	26 5	3 5	10 5	215										
50	Griddle cakes white	1 4	13 5	2 5	1 5	78	0 076	0 036	0	85	19	51				2
—	Muffins cornmeal	1 21 d	19 0	3 0	5 5	14	0 030	0 043	0 4	290	96	91	0 11			
—	Muffins English	1 21 d	23 0	3 0	4 0	140										
—	Muffins plain	1 21 d	19 0	3 0	5 5	14	0 030	0 047	0 4	215	86	103	0 27			
—	Rolls white	1 2 d	16 5	2 5	2 5	99	0 021	0 03	0 3	99	77	81	0 24			
7	Rye Krap	1	5 0	1 0		24	0 004	0 028	1 2		23	6	0 11			
8	Toast melba	1 al	4 0	1 0		20	0 004	0 008	0 1			5				
60	Waffles	1 6	19 0	3 0	13 0	213	0 059	0 081	0 6	17	46	123				5
Cereals																
11	Barley pearl dry	2 T (1 c ck)	22 0	2 5		110	0 005	0 037	0 6		190	88	0 43			
30	Bran flakes	1 c	27 0	3 0	0 5	105	0 019	0 018	1 4		30	4				
15	Corn popped	1 c	12 0	2 0	0 5	61										
30	Corn flakes	1 1 c	5 0	2 5		110	0 007	0 015	0 3				21	0 30		
30	Cornmeal yellow dry	3 T (1 c ck)	27 0	3 5	1 0	107	0 005	0 045	0 3	225	135	39	0 11			
30	Cream of wheat dry enr	3 T (1 c ck)	20 5	3 5	0 5	101	0 143	0 168	12 0		150					
30	Macaroni dry	1 c (1 c ck)	27 0	4 0	0 5	109	0 006	0 044	0 4		15			0 11		

TABLE 15—Continued

Grams	Foods	Household Measure	Grams			Calories	Grams		Mgm	I U	Micro-grams	Mili-grams		I U
			Carbohydrate	Protein	Fat		Calcium	Pho-phorus				Niacin	Ascorbic Acid	
Cereals—Continued														
30	Maltex dry	2 T (1 c ck)	11 0	5 0	0 5	117	0 016	0 031	1 1		50	4*	1 42	
0	Noodles dry	1 c (1 c ck)	21 0	4 0	1 5	114	0 007	0 043	0 4		4		0 12	
30	Oats rolled dry Quaker	1 s (1 c ck)	18 0	5 0	2 0	110	0 016	0 176	1 5		219	63	0 40	
10	Pablum	4 T	7 0	1 5	0 5	39	0 078	0 06	3 0		100	23		
30	Ralston dry	2 T (1 c ck)	21 0	4 5	0 5	107	0 015	0 107	1 0		195	30	1 35	
30	Rice brown dry	2 T (1 c ck)	23 0	2 5	0 5	107	0 070	0 101	0 6		65	9*	2 07	
30	Rice puffed	2 c	25 0	2 0		103	0 063	0 030	0 2					
30	Rice white dry	2 T (1 c ck)	24 0	2 5	1 0	115	0 063	0 023	0 3		9		0 11	
30	Spaghetti dry	1 c (1 c ck)	18 5	3 0	0 5	91	0 006	0 036	0 3					
15	Tapioen minute or pearl	1 T	13 0			57	0 007	0 001	0 2			15		
10	Wheat germ	1 T	5 0	2 5	1 0	39	0 007	0 105	0 7	40	300	70	0 11	
15	Wheat puffed	1 c	10 5	2 0		50	0 006	0 059	0 6			12		
30	Wheat shredded	1 b	24 0	3 5		110	0 014	0 153	1 0		81	55	1 10	
Crackers														
3	Crax (butter cracker)	1	3 5	0 5	1 0	25			0 1					
10	Graham	1 2 3 sq	7 5	1 0	1 0	43	0 002	0 070	0 2		10			
10	Oysterettes	10	7 0	1 0	1 0	41								
4	Saltines	1 2 sq	3 0	0 5	0 5	19	0 001	0 004	0 1					
5	Uneda	1 2 3 sq	4 5	0 5	0 5	25	0 001	0 009	0 1					
8	Zwieback	1	6 5	1 0	0 5	35	0 008	0 012	0 1					
Flour														
111	Cornstarch	1 T	9 0			36								
120	Rye flour medium	1 c	91 0	13 0	1 5	430	0 07	0 347	1 4		230	7*	1 70	
100	Soy bean flour	1 c	12 0	37 5	20 0	373	0 216	0 533	2 7	250	900	600	4 10	
11*	White flour sifted	1 c	65 0	12 0	1 0	337	0 020	0 113	1 2		50	45	0 77	
112	White flour sifted enr max	1 c	80 0	17 0	1 0	397	0 070	0 113	5 9		816	448	7 24	244
112	White flour sifted enr min	1 c	85 0	12 1	1 0	397	0 070	0 113	1 5		414	221	1 11	111
7	White flour sifted enr min	1 T	5 0	0 5		2	0 001	0 007	0 1		20	15	0 06	4
130	Whole wheat flour unsifted	1 c	93 5	18 0	2 5	469	0 016	0 339	4 6	111	550	225	3 50	
Dairy Products														
5	Butter	1 t			4 0	36	0 001	0 001		13 51				5
15	Butter	1 T			12 0	108	0 002	0 00		40 51				15
30	Cheese American (cheddar)	2 T or 1 oz	1 0	7 0	10 0	12*	0 779	0 210	0 3	450	7	155	0 05	
30	Cheese cottage (skim milk)	2 T	1 0	6 0		11	0 050	0 09	0 3	83		84		
30	Cheese cream	2 T		5 0	13 0	137	0 108	0 08	0 2	648	5	0	0 06	
100	Cream heavy 40%	2 T or 3 1/2 T whip	1 0	1 0	11 5	112	0 010	0 019		638	9	4*		
170	Cream heavy 40%	1 c	4 0	4 0	48 0	446	0 096	0 06	0 2	2 5	36	188		
111	Cream heavy 40%	1 c	8 0	8 0	9 0	89	0 197	0 132	0 4	5 404	177	336		
15	Cream light 20%	1 T	0 5	0 5	3 0	31	0 014	0 012		177	5	5		
111	Cream light 20%	2 T	1 5	1 0	6 0	64	0 050	0 04		354	10	50		
170	Cream light 40%	1 c	6 0	4 0	4 0	56	0 117	0 099	0 2	1 415	40	200		
30	Egg white	1		3 0		12	0 004	0 005			69	0 07		
50	Egg whole	1		7 0	5 0	73	0 027	0 112	1 5	300	75	125	0 03	
18	Egg yolk	1		3 0	8 0	57	0 074	0 106	1 5	500	75	5	0 01	
240	Milk buttermilk	1 c	12 0	9 0	0 5	89	0 570	0 233	0 7	3	111	19	0 19	3 0
15	Milk condensed	1 T	8 0	1 0	1 5	41	0 045	0 035	0 1	4*	12	11	0 03	

* The vitamin A content of butter varies according to the season or the type of feed for the animals

TABLE 15—Continued

Grms	Foods	Household Measure	Grams			Calories	Grams		Mgm	I U	Micrograms		Multi-grams		I U
			Carbohydrate	Protein	Fat		Calcium	Phosphorus			Vitamin A	Thiamine	Riboflavin	Niacin	
Dairy Products—Continued															
30	Milk dried whole (now deered)	1 oz	11 0	8 0	7 5	144	0 23 ¹	0 213	0 5	268	75	450	0 33		
30	Milk evaporated	2 T	3 0	2 0	2 5	43	0 0 2	0 060	0 1	113	15	99		0 5	15
140	Milk evaporated	4 c	11 5	9 0	10 0	160	0 28 ¹	0 240	0 5	450	75	396		1 5	45
9	Milk malted	1 T	6 5	1 5	1 0	41	0 032	0 031	0 2	111	31	45			
80	Milk skim	2 T	1 5	1 0		10	0 036	0 0 5	0 1	3	13	60	0 03		
40	Milk skim	1 c	12 0	8 0	1 0	89	0 293	0 230	0 7	111	10 ¹	4 0	0 2 ¹	3 0	
111	Milk whole	2 T	1 5	1 0	1 0	19	0 036	0 0 ¹		5 ¹	16	10	0 03		
120	Milk whole	4 c	6 0	4 0	5 0	85	0 141	0 111	0 3	231	83	262	0 11	1 0	3
140	Milk whole	1 c	9 0	6 0	7 0	123	0 213	0 168	0 3	245	93	303	0 15		11
40	Milk whole	1 c	12 0	8 0	9 5	160	0 253	0 223	0 5	461	128	323	0 2 ¹	3 0	11
900	Milk whole	1 qt	45 0	3 0	38 0	662	1 13	0 892	2 0	1 844	600	2 07	0 89	12 0	20 ¹
Desserts															
—	Cake angel	4 1/2 X 3 3/4 arc	45 0	5 0		212	0 007	0 020	0 3		32	114	0 21		
—	Cake plain	2 cu	25 0	2 0	4 0	448	0 018	0 032	0 3	154	52	111	0 20		
—	Cake sponge	4 1/2 X 3 3/4 arc	40 5	6 5	4 0	2 1	0 023	0 024	1 3	3 5	108	130	0 21		
—	Cake white	cu	33 5	2 5	4 5	185	0 016	0 025	0 3	153	5	71	0 19		
—	Cooked oatmeal	1 thin 1 d	13 5	2 5	1 5	71	0 003	0 056	0 7	30	91	3	0 16		
—	Cookies sugar	1 thin 1 d	5 0	0 5	1 0	31	0 005	0 006	0 1	44	15	13	0 05		
111	Gelatin	1 T			9 0	36									
—	Gingerbread	2 sq	45 0	4 0	7 5	110	0 093	0 041	3 2	117	8	0 41			
—	Joe orange	4 hp T	53 5			14	0 010	0 007	0 2	90	45	70	0 09	24 0	
—	Joe cream commercial vanilla	1 c	20 5	4 0	13 0	15	0 076	0 066	0 2	530	25	50			
100	Jello lemon	1 c	31 5	2 5		136	0 063	0 002	11 1		5		0 01	7 0	
—	Mousse chocolate	3 hp T	70 0	3 0	1 5	250	0 063	0 067	0 2	1 113	27	106	0 01		
—	Pa apple	4 5 pe	5 0	4 5	7 5	512	0 015	0 05	0 9	16	177	1 0	1 06	5 0	
—	Pa lemon meringue	1 5 pe	67 5	5 5	15 0	427	0 094	0 050	1 2	207	151	1 4	0 4	19 0	
—	Pudding bread	3 hp T	5 0	5 0	7 5	159	0 1 0	0 125	0 7	234	111	45	0 23	1 0	
—	Pudding cornstarch	2 r T	26 0	3 0	3 5	143	0 106	0 057	0 2	173	49	196	0 09	1 0	
—	Pudding custard	3 hp T	21 0	9 0	8 5	197	0 16	0 196	1 4	603	117	353	0 13	1 0	
—	Pudding tapioca	1 hp T	27 5	6 0	6 0	188	0 1 5	0 134	0 9	334	80	87	0 10	1 0	
—	Etherbet orange	4 hp T	57 0	2 5	3 0	263	0 093	0 074	0 3	278	117	0 11	44 0		
—	Ethortake peach	1 b 3 d	70 0	6 5	13 5	432	0 063	0 110	1 2	3 46	61	11	2 47	11 0	
—	Spanish Cream	3 hp T	13 5	6 5	8 0	1 5	0 093	0 113	0 7	343	69	91	0 08	1 0	
Fats															
15	French dressing	1 T	1 0		2 5	51									
15	Lard	1 T			13 0	135									
111	M yonnaise (ore egg recipe)	1 T	6 5		11 0	101	0 00	0 005	0 1	111	4	111			
111	Oil corn	1 T			18 0	135									
111	Oil cottonseed	1 T			15 0	135									
15	Oil olive	1 T			15 0	135									
15	Oleomargarine fortified	1 T			11 5	113	0 003	0 003		956					
Fish															
12	Anchovy (C)	3 sm		2 5	1 0	19	0 002	0 0 9	0 1						
100	Clams long (soft shelled)	6-10	2 0	13 5	1 5	76	0 123	0 105	4 1	700	15		1 05		
30	Cod	1 oz		5 5		22	0 003	0 123	0 1	4			4 5	0 60	
90	Cod	3 oz		16 0		66	0 009	0 375	0 3	1	50	144	1 30		
111	Cod salt dry	1 oz		8 5		11	0 005	0 0 0	0 1						

¹ More than 1 of the evaporated milk produced in this country is irradiated and contains not less than 34 U S P units of vitamin D per 4 cup

² If the vitamin D content of milk has been increased by any method it will be indicated ranging from 135-400 I U per quart

³ Percent for the deserts are computed on pages 113-119

TABLE 15—Continued

Gms	Foods	Household Measure	Grams			Calories	Grams		Mgm	I U	Micro-grams	Milli-grams		IU
			Carbohydrate	Protein	Fat		Calcium	Phosphorus				Thiamin	Riboflavin	
Fish—Continued														
90	Cod salt dry	3 oz	26 0	0 5	109	0 025	0 227	0 5						
90	Crab (C)	$\frac{1}{2}$ C	0 5	9 5	1 0	49	0 009	0 105	0 6		81	210	1 68	
30	Flounder	1 oz	4 5		18	0 011	0 048	0 3			24	87	1 15	
90	Flounder	3 oz	13 0	0 5	57	0 033	0 144	0 9			72	171	2 46	
30	Haddock	1 oz	5 0		20	0 005	0 060	0 3			5	60	1 80	
90	Haddock	3 oz	15 0		60	0 015	0 180	0 9			15	180	5 40	
30	Halibut	1 oz	5 5	1 5	36	0 003	0 060	0 3			27	60	1 82	
90	Halibut	3 oz	16 5	4 5	107	0 009	0 180	0 9			81	180	5 4	
60	Herring pickled	1 sm	12 0	9 0	129									
90	Herring smoked	$\frac{1}{2}$	33 0	14 0	258	0 036	0 396	1 8		93	40	144		
90	Lobster meat	$\frac{1}{2}$ C sc	0 5	16 0	1 0	75	0 054	0 252	0 9		145	125		4
30	Mackerel	1 oz	5 5	0 0	40	0 003	0 082	0 3		48	16	1 50		
90	Mackerel	3 oz	17 0	6 5	177	0 010	0 246	0 9		135	108	5 40		
90	Oysters raw	2 m	1 0	2 0	0 5	17	0 016	0 045	1 7		60	90	0 20	
90	Oysters raw	6 m	3 0	6 0	1 5	50	0 048	0 135	5 1		180	270	0 60	
90	Salmon fresh	1 oz	6 5	4 0	6	0 004	0 073	0 3		150	100	2 00		75
90	Salmon fresh	3 oz	19 5	12 0	186	0 012	0 219	0 9		450	180	6 00		225
90	Salmon red (C)	$\frac{1}{2}$ C	6 5	3 5	58	0 009	0 085	0 4		100*	20	67	2 00	150
90	Salmon red (C)	$\frac{1}{2}$ C	19 5	10 5	173	0 060	0 255	1 2		300*	60	201	6 00	450
30	Salmon smoked	1 oz	6 5	3 0	53	0 020	0 088	0 4			50	1 10		
30	Sardines (C)	3 m	6 0	7 5	88	0 011	0 110	0 5		45	15	1 20		
90	Scallops	4 m	3 0	13 0	64	0 015	0 153	0 7		180	8	42		
30	Shad	1 oz	5 5	3 0	49	0 006	0 060	0 3						
30	Shrimp	2-4 m	7 0		8	0 005	0 081	0 4			27	43	0 23	
90	Smelts	2 L	16 0	1 5	72	0 013	0 182	0 9						
60	Tuna	$\frac{1}{2}$ c	16 0	7 0	127	0 013	0 174	0 8		120				
90	White fish	3 oz	20 5	6 0	136	0 015	0 183	0 9			81			
Fruits $\frac{1}{2}$ Edible Portion														
100	Average Figure	1 av	5 0	0 5	2*									
100	Avocado Fuerte	$\frac{1}{2}$ m	5 0	1 5	26 5	266	0 013	0 044	1 4		110	150	135	5
100	Rhubarb	1 c	4 0	0 5	18	0 004	0 018	0 5		100	15			
100	Watermelon	2 X 2 $\frac{1}{2}$ X $\frac{1}{2}$	7 0	0 5	30	0 007	0 013	0 2		50	30	15	0 10	7
Fruits $\frac{1}{2}$ Edible Portion														
100	Average Figure	1 av	10 0	1 0	44									
100	Blackberries	1 sd	12 0	1 0	1 0	61	0 017	0 019	0 8	78	30			7
100	Cantaloup (muskmelon)	$\frac{1}{2}$ m	9 5	0 5	40	0 016	0 018	0 7		1 000	50	60		80
100	Cranberries	1 c	11 5	0 5	53	0 013	0 011	0 6		80		1 29		12
20	Cranberry sauce (without sugar)	2 T	10 0		40	0 001				8				2
100	Currants red	$\frac{1}{2}$ c	12 5	1 5	0 5	61	0 006	0 038	0 6		81			45
100	Gooseberries	$\frac{1}{2}$ c	10 0	1 0	0 5	49	0 035	0 031	0 5					25
100	Grapefruit fresh	$\frac{1}{2}$ m	10 0	0 5	42	0 021	0 020	0 3		21	78	90	0 21	40
100	Grapefruit juice (C) un sweetened	$\frac{1}{2}$ c sc	10 5	0 5	44	0 010	0 020	0 3		21	78	90	0 21	40
100	Lemon fresh	1 L	8 5	1 0	0 5	43	0 009	0 011	0 6		30			11
100	Lemon juice	$\frac{1}{2}$ c sc	8 5	1 0	0 5	43	0 022	0 011	0 6		30		0 09	45
100	Orange fresh	1 m	11 0	1 0	43	0 004	0 018	0 4		2 5	110	50	0 22	54
100	Orange juice	$\frac{1}{2}$ c sc	12 5	0 5	52	0 024	0 018	0 4		225	110	50	0 22	54
100	Peach yellow fresh	1 m	10 0	0 5	50	0 010	0 019	0 3		1 500	85	45	0 25	8
100	Strawberries	10 L	8 0	0 5	39	0 023	0 023	0 9		75	20	10		27
100	Tangerine	2 sm	11 0	1 0	0 5	53	0 041	0 018	0 3		252	88		

* Vitamin A figures of canned salmon per 30 grams range from 30 IU in pink to 100 in red to 2.5 in Chinook

TABLE 15—Continued

Grams	Foods	Household Measure	Grams				Calories	Grams		Mgm	I U	Micro-grams		Mills. grams		I U
			Carbohydrate	Protein	Fat	Calcium		Phosphorus	Iron			Vitamin A	Thiamine	Riboflavin	Niacin	
Fruits 16" Edible Portion																
100	Average Figure	1 av	14 0	0 5		59										
100	Apple	1 sm	14 0	0 5	0 5	63	0 007	0 012	0 4	72	40	30	0 50	6		
100	Apple juice	1 c	12 0			52	0 008		0 4	70	24	36		6		
100	Apricots fresh	3 m	13 0			52	0 015	0 014	0 6	4 500	40	105				
100	Blueberries	1 c	15 0	0 5	0 5	6	0 0 5	0 020	0 9	50	20	13		10		
100	Cherries	1 sm	15 0	1 0	0 5	69	0 017	0 072	0 6	150	41			8		
100	Grapefruit (C)	3 sections	14 0	0 5		54	0 011	0 020	0 3	21	78	60	0 30	40		
100	Grapes Tokay	20	15 0	1 0	1 0	73	0 015	0 011	0 7	40	84	9		2		
100	Nectarine	2 m	18 0	0 5		66	0 005	0 022	0 5	1 500	72			24		
100	Pear fresh	1 m	18 0	0 5	0 5	71	0 015	0 018	0 3	12	85	75	0 14	4		
100	Pineapple fresh	1 sl 1/2	14 0	0 5		53	0 016	0 011	0 3	56	100	65		18		
100	Pineapple juice (C)	1 c sc	13 0	0 5	0 5	59	0 018	0 010	0 1	80	75	23		7		
100	Plums	3 av	13 0	0 5		54	0 010	0 027	0 5	107	120	40	0 55	5		
100	Raspberries red	1 c	14 5	1 0	0 5	67	0 024	0 027	0 9	130				12		
Fruits 16" Edible Portion																
100	Average Figure	1 av	19 0	0 5		78										
100	Figs fresh	3 m	20 0	1 5	0 5	91	0 053	0 036	0 9	75	90	82	0 63	2		
100	Peach yellow (C)	1 H 1 T juice	18 0	0 5		74	0 009	0 013	0 2	1 500	80	45		4		
100	Pears (C)	2 H 1 T juice	18 0	0 5	0 5	79	0 009	0 018	0 2	10	30	75				
100	Pineapple (C)	1 sl 1/2 1 T juice	21 0	0 5		86	0 015	0 009	0 3	25	80	25		10		
Fruits Over 16" Edible Portion																
100	Average Figure	1 av	25 0	0 5		10										
100	Apple sauce (C)	1 c	26 5	0 5		108	0 005	0 009	0 3	7	27	30		4		
100	Apricots (C)	4 sm 1/2 1 T juice	25 0	0 5		10	0 009	0 014	0 4	4 088	21	78		2		
100	Banana	1 m	23 0	1 0		96	0 008	0 018	0 6	350	50	73	0 61	10		
100	Fruit cocktail (C)	1 c sc	26 0	0 5		100	0 014	0 019	0 4	493	87	88		4		
100	Prune juice	1 c sc	23 0			9	0 01	0 018	0 9							
Fruits Dried Edible Portion																
100	Apricots	6 H	20 0	1 5		86	0 020	0 036	2 3	2 500	27	81		1		
100	Currents	2 T	21 5	1 0		90	0 023	0 041	0 8							
100	Dates	3-4	25 5	0	1 0	105	0 011	0 018	1 0	90	23	14	0 64			
100	Figs	2 sm	22 5	1 0		94	0 043	0 035	0 9	81	39	31	0 57			
100	Peaches	2 H	21 5	1 0		90	0 018	0 036	1 3	1 100	17	60				
100	Prunes stoned	3 m	21 5	0 5		88	0 018	0 014	0 9	470	80	105				
100	Prunes Eur (C) Heins	2 T	8 0	0 5		34	0 010	0 010	0 5	40	13	4				
100	Raisins seeded	2 T	22 0	1 0	1 0	101	0 018	0 030	0 9	17	45	38	0 12			
Meat																
100	Bacon	5 sl full length	3 0	19 5	188	0 007	0 032	0 3			30	30	1 3			
100	Beef lean	1 os	6 5	2 3	49	0 004	0 061	0 9			43	69	23			
100	Beef lean	3 os	19 5	7 5	146	0 012	0 183	2 7			144	207	6 69			
100	Beef medium fat	1 os	5 0	6 5	79	0 003	0 030	0 7			45	60	2 38			
100	Beef medium fat	3 os	15 0	19 5	236	0 009	0 150	3 1			135	180	7 08			
100	Brain av	3 os	9 5	8 5	115	0 008	0 098	2 3			225	233	5 81			
100	Ham lean	1 os	7 5	4 5	71	0 006	0 072	0 9			304	75				

* The vitamin content of meat is given before cooking. Like most other foods, meat undergoes a change in its vitamin content on cooking, the exact amount depending upon its method of preparation.

Table showing % of vitamin lost in the cooking of meat

	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Roasting	30%	10%	8%	—
Broiling	30%	10%	8%	25%
Braising	35%	10%	10%	50%
Cooking in water	60%	13%	—	50%

[Adapted from chart of National Live Stock and Meat Board]

TABLE 15—Continued

Grams	Foods	Household Measure	Grams				Mgm	I U	Micro-grams	Multi-grams	IU			
			Carbohydrate	Protein	Fat	Calories								
						Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid	Vitamin B ₁₂
Meat—Continued														
90	Ham lean	3 oz	22.5	13.5	5	212	0.018	0.216	2.7		912	225		
90	Ham medium fat	1 oz	5.0	10.5	15	115	0.003	0.045	0.7		180	65	2.00	
90	Ham medium fat	3 oz	15.0	31.5	45	344	0.009	0.135	2.1		540	195	7.02	
90	Heart sv	3 oz	14.5	10.0	143	0.003	0.210	5.6			248	923	6.1*	
90	Kidney sv	3 oz	13.5	7.5	1.6	0.015	0.255	5.8	849		225	1.650	4.14	6
30	Lamb medium fat	1 oz	6.0	5.0	69	0.003	0.062	0.5			75	71	2.54	
90	Lamb medium fat	3 oz	18.0	15.0	207	0.009	0.186	1.5			225	213	7.62	
30	Liver beef	1 oz	0.5	6.0	1.5	40	0.003	0.113	2.4	9.000	120	900	4.12	11
90	Liver beef	3 oz	1.5	18.5	4.5	121	0.010	0.340	7.4	27.000	360	2700	12.33	33
30	Liver calves	1 oz	1.0	5.5	1.5	40	0.003	0.113	1.6	8.100	120	990	4.0	9
90	Liver calves	3 oz	3.0	17.0	4.5	121	0.010	0.340	4.9	24.300	360	2700	12.11	29
30	Liver lamb	1 oz	1.0	6.0	1.9	37	0.003	0.113	1.9	8.100	120	990	4.27	11
90	Liver lamb	3 oz	3.0	18.5	5.7	112	0.010	0.340	5.9	24.300	360	2700	12.83	33
30	Liver pork	1 oz	0.5	5.5	1.0	33	0.003	0.113	9.1	8.100	128	810	5.13	8
90	Liver pork	3 oz	1.5	17.0	3.0	101	0.010	0.340	27.3	24.300	384	2430	15.39	11
30	Pork lean	1 oz	8.5	2.0	52	0.006	0.072	0.9			360	68		
90	Pork lean	3 oz	25.5	6.0	156	0.018	0.216	1.8			1.080	204		
30	Pork medium fat	1 oz	4.5	9.5	104	0.003	0.065	0.7			370	85	2.54	
90	Pork medium fat	3 oz	13.5	28.5	311	0.009	0.195	2.1			960	195	6.90	
30	Poultry dark	1 oz	6.5	1.5	40	0.006	0.064	0.6			45	67	2.00	
90	Poultry light	1 oz	7.0	1.0	37	0.004	0.067	0.6			48	21	2.19	
90	Sweetbreads sv	3 oz	10.5	30.0	312						37	111		
90	Tongue sv	3 oz	15.0	13.0	177	0.010	0.133	2.3			200	5.97		
30	Veal lean	1 oz	6.0	3.0	51	0.003	0.053	0.9			77	2.10		
90	Veal lean	3 oz	18.0	9.0	153	0.009	0.159	2.7			204	6.30		
Miscellaneous														
10	Olive green	1 m	1.0	3.0	31	0.012	0.001	0.3	12		7	95		
10	Olive ripe	2 am	0.5	2.5	25	0.012	0.001	0.3	10					
90	Tomato ketchup	1 T	5.0	0.5	22	0.003	0.004	0.2						
100	Pickle dill	1 L	2.0	0.5	10									
90	Pickle sweet	1 am	1.0	0	40									
—	White sauce thin	½ c	8.5	4.0	10.5	145	0.143	0.116	0.3	433	78	270	0.13	
—	White sauce med	½ c	5.5	2.0	8.5	107	0.072	0.060	0.2	312	44	138	0.10	
Nuts														
30	Almonds shelled	24-30	5.0	6.5	16.5	193	0.076	0.14*	1.2	174	54	150	0.55	
30	Brazil	4	3.0	4.5	10.0	210	0.038	0.130	0.8	3	150			
30	Coconut dried	5 T	1.0	1.0	12.5	181	0.017	0.047	1.0		43			
30	Peanuts roasted	33-35	7.0	8.0	11.5	164	0.070	0.12	0.6	108	165	45	3.00	
30	Peanut butter	2 T	5.0	9.0	14.0	18	0.070	0.12	0.6		108	165	45	3.00
30	Pecans shelled	24 H	4.5	3.0	21.0	219	0.076	0.100	0.8	20	150	90		
30	Walnuts shelled	16-32 H	4.0	5.5	19.5	214	0.027	0.107	0.6	11	135			
Soups														
40	Bouillon	1 c		6.0	11									
90	Consomme plain broth (C) Heinz	1 c		8.5	34	0.005	0.046	1.0						
240	Pea (C) Heinz	8 T + ½ c water	9.5	3.5	2.0	70								
90	Tomato (C) Heinz	8 T + ½ c water	18.0	2.0	2.0	86								
240	Vegetable with beef stock (C) Heinz	8 T + ½ c water	18.0	3.5	1.0	11								
Sweets and Candy														
30	Chocolate unsweetened	1 sq	9.0	4.0	14.5	183	0.077	0.136	0.8		23			
3	Cocoa dry	1 t	1.0	0.5	0.5	1	0.003	0.018	0.1					

TABLE 15—Continued

Grams	Foods	Household Measure	Grams			Calor es	Grams		Mgm	I U	Micro-grams		Mills-grams		I U
			Carbohydrate	Protein	Fat		Calcium	Phosphorus			Thiamine	Riboflavin	Niacin	Ascorbic Acid	
Sweets and Candy—Continued															
9	Cocoa dry	1 T	3 0	1 0	2 5	40	0 009	0 057	0 2						
30	Honey	2 T sc	24 0			98	0 001	0 005	0 2			2	17	0 11	
100	Jelly	1 T	15 0			60									
100	Jelly	5 T	75 0	1 0		304									
100	Marmalade orange	1 bp T	25 5			102									
30	Molasses cane	2 T sc	21 0	0 5		86	0 07	0 009	2 8						
100	Sorghum	1 T	13 5			100									
100	Syrup corn light	2 T	26 0			104	0 003								
30	Syrup maple	1 r T	11 5			38	0 022	0 004	0 9						
11	Sugar brown	1 T	10 5			42	0 010	0 001	0 3						
11	Sugar confectioners	1 T	11 0			44									
15	Sugar granulated	1 T	15 0			60									
15	Sugar maple	1 pc 1	13 5			54	0 035	0 003	0 6						
11	Chocolate cream	1	9 0	0 5	2 0	86	0 003	0 014	0 1						
11	Chocolate Hershey plain	1 bar 5¢	4 0	3 0	14 5	239	0 046	0 089	1 1						
5	Chocolate Hershey almond	1 bar 5¢	17 0	3 0	13 5	70*	0 072	0 087	1 0						
100	Chocolate Nestle's semi-sweet	17 oz bar	104 0	10 5	66 5	1 057									
32	Fondant	3 pieces	30 0			120									
20	Fudge	1 p-see	19 5	0 5	2 5	103	0 010	0 015	0 1	61	5	13			
30	Gum drop	3 L	29 5			118									
25	Marshmallow	4	5 0	1 0		104									
5	Peanut brittle	1 piece 2½	17 0	3 0	4 5	1 1	0 007	0 039	0 2	36	50	70			
Vegetables															
100	Mushrooms	10 m					0 014	0 093	0 7		60	5		1	
Vegetables "8% Edible Portion"															
100	Average Figure	1 a	4 0	1 5		22									
100	Asparagus fresh	8 st	4 0	2 0		24	0 0 1 0	0 040	1 0	500	185	100	0 81	27	
100	Asparagus (C)	7 st	3 0	2 0		20	0 016	0 079	0 7	300	100	5		80	
100	Beans green string (C)	½ c	6 5	2 0		31	0 037	0 035	1 4	830	111	73			
60	Beans green string strained (C) Heinz	4 T	2 0	1 0		12	0 031	0 018	0 6	650	2*	13		5 5	
80	Beans soy dried	2 T	3 5	10 5	5 5	106	0 045	0 176	5	30	360	725	1 23		
100	Bean sprouts	1 c ac	4 0	3 0	0 5	33	0 04	0 044	1 0	35	110	120		160	
100	Beet greens	½ c	5 5	2 0	0 5	35	0 094	0 040	3 2	16 100	111	6 5		13	
60	Beets strained (C) Heinz	4 T	5 0	1 0		24	0 010	0 070	1 0	23	8	16			
100	Broccoli e ture plant	½ c	5 5	3 5		36	0 140	0 093	1 4	6 000	60	350	1 20	11	
100	Cabbag partly green	½ c	5 5	1 5		24	0 045	0 031	0 4	55	105	100	0 70	60	
100	Cabbage Chinese	1 c	2 5	1 5		16	0 040	0 044	1 0	600	76	23		40	
60	Carrots strained (C) Heinz	4 T	3 0	0 5		11	0 016	0 016	0 6	3 8 5	14	5		3	
100	Caiflower	½ c	5 0	2 5		30	0 055	0 044	0 9	47	145	185		71	
100	Celery Bleached	4 st	4 0	1 5		77	0 072	0 046	0 6	10	35	111		17	
100	Chard Swiss	½ c	5 0	1 5	0 5	31	0 100	0 050	3 1	9 000	73	13		15	
100	Cucumber	1 m	3 0	1 0		16	0 025	0 018	0 3	70	30	25	0 3	8	
100	Egg Plant	½ c	5 5	1 0		26	0 011	0 031	0 8	110	70	5	0 60	5	
100	Endive	2 st	4 0	1 5		2	0 104	0 039	1 *	3 550	100	224	1 77	12	
100	Escarole	4 lvs	4 0	2 0		11	0 074	0 035	1 8	15 000	110	250		8	

* Figures for vegetables are for fresh raw products unless otherwise indicated. Mineral and vitamin losses will vary with the method of cooking. Vegetables commercially canned or frozen lose negligible amounts of their vitamin content. The household measures given in cups are for the cooked product.

TABLE 15—Concluded

Grams	Foods	Household Measure	Grams			Calories	Grams		Mgm	I U	Micro-grams	Milli-grams		I U
			Carbohydrate	Protein	Fat		Calcium	Phosphorus				Niacin	Ascorbic Acid	
Vegetables—Continued														
100	Kale	½ c	7 0	4 0	0 5	49	0 181	0 067	2 5	18 000	150	400		100
100	Lettuce green leaf	10 lbs	3 0	1 0		16	0 009	0 078	1 5	5 000	75	150		18
100	Lettuce head	½ bd	3 0	1 0		16	0 017	0 040	0 5	100	75	45	0 50	13
60	Peas strained (C) Heinz	4 T	5 0	3 0		37	0 006	0 048	1 0	738	72	70		7
100	Pepper green	1 L	5 5	1 0		26	0 012	0 078	0 4	3 000	30	60	0 76	125
100	Radishes	10	4 0	1 0		20	0 037	0 031	0 8	88	60	30	0 10	25
100	Sauerkraut	½ c	5 0	1 5		26	0 039	0 009	0 3	88	100			5
100	Spinach fresh	½ c	3 0	2 5	0 5	27	0 078	0 048	2 5	18 000	100	400	0 73	60
60	Spinach strained (C) Heinz	4 T	1 0	1 5		10	0 077	0 077	0 6	5 518	10	60		7
100	Squash summer	½ c	4 0	0 5		18	0 018	0 015	0 4	300	4*	81		3
100	Tomato fresh	1 m	4 0	1 0	0 5	25	0 007	0 071	0 6	1 000	75	88	0 81	22
100	Tomato (C)	½ c	4 0	1 0	0 5	25	0 007	0 015	0 4	1 000	75	45	0 55	22
100	Tomato juice	½ c	4 0	1 0	0 5	25	0 007	0 015	0 4	1 000	75	45	0 10	22
20	Tomato paste (C)	1 T	3 0	1 0		16	0 007	0 015	0 4					
80	Tomato strained (C) Heinz	4 T	3 0	0 5		14	0 005	0 010	0 3	690	45	88	0 06	12
100	Watercress	1 sm bunch	3 0	2 0	0 5	25	0 157	0 046	3 0	2 000	125	220		81
Vegetables 10% Edible Portion														
100	Average figure	1 av	8 5	2 0		42								
100	Artichoke French	½ L	12 0	3 5	0 5	67	0 040	0 094	1 0	225	170			9
100	Beans green string fresh	½ c	7 5	2 5		40	0 065	0 044	1 4	1 000	75	110	0 64	25
100	Beets fresh	2 m	9 5	1 5		44	0 074	0 041	0 9		30	80	0 64	15
100	Brussels sprouts	7 sm	9 0	4 5	0 5	50	0 027	0 121	1 2	500	150			65
100	Carrots fresh	1 L	9 5	1 0	0 5	47	0 045	0 041	0 6	6 000	100	90	1 47	4
100	Dandelion greens	½ c	9 0	2 5	0 5	61	0 084	0 035	3 1	10 800	187	275		22
100	Okra	10 pods	7 5	2 0		38	0 075	0 053	0 5	2 000	120			20
100	Onions	2 m	10 0	1 5		46	0 038	0 044	0 5		88	60	0 30	12
100	Peas (C)	4 T	10 0	3 0		52	0 016	0 106	1 3	588	256	130	1 30	6
100	Pumpkin	½ c	7 5	1 0		34	0 022	0 046	0 9	1 000	81	45	0 70	5
100	Rutabaga (yellow turnip)	½ c	9 0	1 0		40	0 071	0 056	0 5	88	30	35		30
100	Squash winter	½ c	9 0	1 5	0 5	17	0 019	0 078	0 6	2 000	88	81		3
100	Turnip white	½ c	7 5	1 0		34	0 051	0 032	0 5		30	30		30
Vegetables 15% Edible Portion														
100	Parsnips	½ c	14 0	1 5	0 5	67	0 060	0 078	0 8		155	75		
100	Peas fresh	½ c	17 5	6 5	0 5	101	0 023	0 127	2 1	1 000	400	200	1 35	25
Vegetables 20% Edible Portion														
100	Beans baked (C) with fat	3 r T	10 5	7 0	2 5	129	0 067	0 185	2 0	55	132	110		
30	Beans lima dried	2 T (½ c ck)	20 0	5 5	0 5	107	0 027	0 118	2 9	30	157	235	0 88	
30	Beans navy dried	2 T (½ c ck)	18 0	7 0	0 5	105	0 044	0 139	3 1		153	98	0 85	
100	Corn yellow fresh	1 m ear ½ c	20 5	3 5	1 0	105	0 006	0 103	0 5	600	135	60		10
100	Corn yellow (C)	4 T	19 0	3 0	1 0	97	0 007	0 100	0 4	500	100	60		5
30	Lentils dried	2 ½ T	18 0	7 5	0 5	107	0 031	0 115	2 5	18	150	95	0 93	
30	Peas dried	2 T (½ c ck)	18 5	7 5	0 5	109	0 073	0 123	1 8	225	153	90	0 30	
100	Potato white	1 sm	19 0	2 0		84	0 011	0 067	1 3	30	100	40	1 18	10
Vegetables Over 20% Edible Portion														
100	Beans lima fresh	½ c	23 5	7 5	1 0	133	0 088	0 133	2 4	300	300	175	0 29	10
45	Potato chips	1 L	27 0	3 0	16 5	50	0 015	0 063	1 2	45	100	40		
100	Potato sweet	1 sm	28 0	2 0	0 5	125	0 030	0 052	1 0	3 500	90	75	1 29	20

* Calcium of spinach is not available (see Sherman and Lanford *Essentials of Nutrition* 2nd ed. Macmillan Co 1943)

Sources of figures used in Table 15

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- Sherman Henry C and Carol ne Sherman Lanford 1943 Essentials of Nutrition Macmillan Co N Y
- Taylor Clara Mae 194 Food Values in Shares and Weights Macmillan Co N Y
- Waisman Harry A and C A Elvehjem 1941 The vitamin content of Meat Burgess Publishing Co Minneapolis Minn
- Various commercial firms

TABLE 16
VARIED MENUS USING APPROXIMATELY THE SAME TOTAL FOOD
FOR THE DAY

Breakfast

Fruit Cereal with milk and sugar	Fruit	Fruit	Fruit Cereal	Fruit	Fruit Griddle cakes or waffles with butter and syrup or jelly
Bread or toast but- ter jelly	Bread or toast butter	Bread or toast butter jelly	Bread or toast butter jelly	Doughnuts	Bacon or sausage
Egg	Egg	Bacon or ham and egg			
Beverage	Beverage	Beverage	Beverage	Beverage	Beverage

Noon Meal

Cereal with cheese Vegetable salad with mayonnaise	Soup with cereal Vegetable salad with cheese Mayonnaise	Vegetable plate in- cluding potato	Milk soup Fish or chicken sauced with vege- tables Mayonnaise	Egg or meat sand- wich Vegetable salad with mayonnaise	Vegetables au gratin Crisp salad with dressing
Bread and butter Fruit Milk	Rolls and butter Fruit co- Milk	Rolls and butter Fruit salad Milk	Rolls and butter Fruit gelatin Beverage	Fruit and cookies Milk	Rolls and butter Fruit and cookies Milk

Evening Meal

Broth with crackers		Broth with cereal	Tomato juice	Vegetable soup toasted crax	Consomme
Meat or fish Potato	Meat or poultry Rice	Meat or poultry with stuffing	Baked beans	Meat or poultry with dumplings	Meat or chicken pie with vege- tables
Vegetables 2-cooked	Vegetables cooked salad	Vegetables cooked celery olives	Coleslaw or crisp salad	Vegetables cooked	Vegetable cooked
Bread and butter	Bread and butter	Bread and butter	Brown bread and butter	Rolls and butter	Bread and butter
Fruit gelatin Cake	Fruit pie	Ice cream	Fruit sherbet	Cereal pudding	Floating island
Beverage	Beverage	Beverage	Beverage	Beverage	Beverage

TABLE 17
SUGGESTIONS FOR WAYS OF USING FOODS IN THE DIET*

	Milk	Meat Fish and Poultry			Eggs	Cheese	Fats
		Fresh Canned	Salt	Smoked			
Kinds of Food	Dried	Beef	Pork	Beef		American	Bacon
	Evaporated	Pork		Pork		Cottage with or	Butter
	Fresh	Lamb				without the fat	Oils
	Skummed	Mutton Veal				Cream	Peanut butter
Ways of Using the Foods		Chicken				Others	Cheese (see cheese)
		Duck					Cream (see milk)
		Turkey					
		Cod	Cod	Haddock			
		Flounder	Haddock	Halibut			
		Haddock	Herring	Herring			
		Halibut	Mackerel	Salmon			
		Herring					
		Mackerel					
		Salmon					
		Shell fish					
	As a beverage	As croquettes with white	As omelet com	With cream			
	Chocolate	sauce crumbs and egg	bined with	sauce on toast			
	Eggnog	fried	Cheese	noodles maca			
	Fruit juices	As hash with chopped vege-	Jelly	roni rice			
	Milk shakes	tables	Vegetables	With omelets			
	Over cereals	As loaf with egg crumbs	Scrambled com	In cheese cake or			
	In boiled dressing	cereal and chopped vege-	bined with	pie			
	In cereals	tables	Cheese	In salads with			
	In cream sauce	As meat balls or fish cakes	Meat	fruits and vege-			
	In custards	with egg bread crumbs	Tomatoes	tables			
	In puddings	and cereal	Stuffed com	In sandwiches			
	In vegetable or fish	As stuffing for vegetables	bined with	alone or with			
	chowder	combined with egg and	foods to flavor	vegetables			
	In vegetable soup	cereal	With cream	In soups as flavor			
	With fruits and	In chowder fish with milk	sauce (cheese	ing			
	berries	and potatoes	may be	With crackers and			
	In ice cream	In pie with vegetables and	added)	jelly			
	In junket	biscuit crust	With bacon				
	In sherbets	In salad with egg fruit and	With toast				
		vegetables	In desserts				
	Cream	In sandwiches with vege-	Cakes or cookies				
	In beverages	tables	Custard				
	In frozen desserts	In soup with vegetables and	Frozen desserts				
	Ice cream	cereals	Pudding				
	Mousse	In stew meat with vege-	In salad com				
	In gelatin desserts	tables	bined with				
	In soups	With cream or white sauce	meat fish				
	With desserts	(cheese may be added)	vegetables				
	Plain	With cereals as macaroni	chicken				
	Whipped	spaghetti and rice (vege-	In sauces				
	As sandwich fill	tables may be added)	In mayonnaise				
	ings combined						
	with fruits and						
	nuts						

*For recipes consult an authoritative cook book.

TABLE 17—Continued

Kinds of Food	Cereals		Breads and Flours
	Barley (pearled)	Ralston	Cornmeal whole
	Corn flakes	Rice brown	Cornstarch
	Cornmeal	Rice polished	Graham
	Farina	Spaghetti	Oatmeal
	Grapenuts	Tapioca	Rye
	Hominy	Wheat cracked	Wheat whole
	Macaroni	Wheat shredded	White
	Noodles	Wheatena	
	Oats rolled		
	Pett john		
Ways of Using the Foods	<p>As breakfast cereals (hot or cold)</p> <p>Fried mush</p> <p>Fritters</p> <p>Served with</p> <p>Fruit (fresh dried canned)</p> <p>Milk cream butter</p> <p>Molasses honey syrup</p> <p>In fritters</p> <p>In gruels</p> <p>In soups</p> <p>As a main dish</p> <p>Combined with meat fish egg or cheese</p> <p>Served with cream sauce (cheese may be added)</p> <p>tomato sauce</p> <p>As fried mush</p> <p>As dessert</p> <p>In cookies</p> <p>In puddings served with</p> <p>Milk cream butter</p> <p>Fruit (fresh dried canned)</p> <p>Molasses honey syrup</p> <p>apices</p> <p>Sugar brown and white</p>		<p><i>Breads</i></p> <p>Sliced served with butter jelly honey peanut butter</p> <p>Sandwiches filled with</p> <p>Cheese or jelly</p> <p>Fruit (fresh dried)</p> <p>Mayonnaise</p> <p>Meat fish poultry</p> <p>Relishes</p> <p>Vegetables</p> <p>Toast foods served on</p> <p>Cheese and bacon (toasted together)</p> <p>Cream sauce (cheese may be added)</p> <p>Jelly honey butter</p> <p>Meat fish poultry (with or without gravy)</p> <p>Vegetables (creamed or buttered)</p> <p><i>Hot breads</i></p> <p>Muffins with dried fruits berries molasses</p> <p>Pancakes</p> <p>Popovers</p> <p>Scones</p> <p>Waffles</p> <p><i>Crackers</i></p> <p>Arrowroot cookies</p> <p>Butter varieties</p> <p>Cheese varieties</p> <p>Graham</p> <p>Oatmeal</p> <p>Rice wafers</p> <p>Rye crisp</p> <p>Soda crackers</p> <p>Sweetened varieties</p> <p>Plain or frosted</p> <p>Combined with fruit nuts chocolate spices</p> <p>Whole wheat wafers</p> <p>In puddings</p> <p><i>Flours</i></p> <p><i>Cake</i></p> <p>Plain or frosted</p> <p>With or without fat</p> <p>In combination with nuts fruits chocolate spices and flavoring</p> <p><i>Cookies</i></p> <p>Plain or frosted</p> <p>In combination as above</p> <p><i>Doughnuts</i></p> <p><i>Pie</i></p>

With few exceptions breads and cereals are enriched or fortified to the whole grain nutritive value

TABLE 17—Concluded

Vegetables				Fruits		Sweets	
Fresh or Canned			Dried	Fresh Canned	Dried		
Green Leafy	Yellow	Others	Legumes				
Kinds of food	Beet greens	Carrots	Asparagus	Beans	Apple	Apples	Honey
	Brussels sprouts	Corn yellow	Beans lima	Lentils	Banana	Apricots	Molasses
	Cabbages	Parsnips	Beans string	Peas	Berries	Dates	Sugar brown
	Chard	Potato sweet	Beets		Grapefruit	Figs	Sugar white
	Dandelion greens	Squash	Cauliflower		Lemon	Peaches	Syrup
	Lettuce	Turnip	Celery		Orange	Prunes	
	Spinach		Corn white		Peach	Raisins	
			Cucumbers		Pear		
			Eggplant		Pineapple		
			Onion		Rhubarb		
			Peas green		Tomato		
			Peppers				
		Potatoes white					
		Radishes					
		Tomatoes					
Ways of using the foods	Salads (raw or cooked)			Combined with Meat	Candies		Molasses
	Combined with Cheese nuts eggs			vegetables	Desserts		In baked beans
	Fruit			Baked with	Frozen		In gingerbread
	Meat fish poultry			Added fats	Mousse		In ginger cookies
	Dressing—			Fat meat	Sherbet		On bread
	French mayonnaise boiled or variations			Molasses	Gelatin		On cereal
	Served with			Brown sugar	Pies		Sugar
	Butter			In scalloped dishes	Puddings		In desserts
	Cream thin			In soups	Shortcake		In candy
	Sauce white (cheese may be added)			(Cheese or meat may be added)	Juice		In jelly
	Scalloped with			In sandwiches	In salads combined with		In preserves
	Crumbs and butter			(Baked beans)	Cheese and nuts		On cereals
In soups with				In sandwiches combined with		On fruit	
Meat fish poultry (cereals may be added)				Cheese and nuts		Honey and Syrup	
In chowders and stews with				In sauces for		Used as molasses	
Fish and milk				Meat fish desserts			
Meat				Preserved as			
In sandwiches with				Jam jelly marmalade			
Butter and dressing (cucumbers lettuce onion young spinach tomato watercress)				Whole			
As pickles and relishes				Raw or cooked			
				With cereals			

TABLE 18

**METHOD OF COMPUTING THE FOOD VALUE OF A RECIPE
AND THE COMPUTED FOOD VALUE OF SOME COMMONLY USED RECIPES***

The recipe should be taken from an authoritative cook book

Steps in computing the food value of a recipe

- 1 List the foods used in the recipe stating the amounts in both grams and household measures
- 2 From the Table of Food Values and Measures (Table 15) ascertain for each ingredient the units of carbohydrate protein fat calcium phosphorus iron and the vitamins Arrange these figures in tabulated form similar to example given If it is desired to know the sodium chloride content or excess acid or alkaline ash of the recipe the values can be calculated from Tables 40 46 and 47
- 3 Total the amount of each of the food constituents of the various foods
- 4 To determine the number of calories in the recipe multiply the grams of carbohydrate and of protein by 4 and the number of grams of fat by 9 Total these figures
- 5 To determine the food value of one serving divide these total figures by the number of servings the recipe makes

After computing several recipes or diets one is able to evaluate them in approximate amounts

Example Recipe for Gingerbread

Foods	Household Measure	Grams				Calo-ries	Grams		Milk grams	I U	Micro-grams	Micro-grams	Milk grams	Milk grams
		Amount	Car-bo-ly drate	Pro-tein	Fat		Cal-cium	Phos-pho-rus						
Molasses	1 cup	240	168	4		633	0 616	0 072	23 4					
Flour white	2½ cups	25	191	27	2	890	0 045	0 254	3 4		93	655	3 79	
Fat (lard)	4 tablespoons melted	60			60	540								
Soda	1 teaspoon													
Ginger	1½ teaspoons													
Salt	3 teaspoon													
Boiling water	1 cup													
	8 servings		359	31	62	2 118	0 661	0 226	25 8		932	655	3 79	
	1 serving		44 8	3 8	7 7	265	0 083	0 041	3 2		117	8	0 41	

Method Mix and sift soda ginger and salt with flour Add water to molasses and to this add slowly sifted flour Add melted shortening and beat well Bake in shallow greased pan in a moderate oven for about 25 minutes

Recipes are taken from *Good Cooking* Heceltine and Dow Houghton Mifflin Company 1933 The food values were computed from the Table of Food Values and Measures (Table 15)

TABLE 18—Continued

Foods	Household Measure	Grams				Calo-ries	Grams		Mili-grams	I U	Micro-grams	Macro-grams	Mili-grams	Mili-grams
		Amount	Car-bo-hy-drates	Pro-tein	Fat		Cal-cium	Phos-pho-rus						
Breads														
Biscuit														
Flour	2 c	224	170	24	2	794	0 040	0 226	3		828	58*	2 9	
Milk	1 c	160	8	5 5	6 5	114	0 188	0 143	0 3	306	83	248	0 14	
Fat (lard)	3 T	45			45	405								
Salt	1 t													
Baking powder	8 t													
14 biscuits	2½ d		1 8	29 5	53 5	1313	0 278	0 374	3 3	306	911	930	3 05	
1 biscuit	2½ d		12 6	2 1	3 8	94	0 016	0 027	0 2	22	65	■	0 22	
Muffins plain														
Flour	2 c	274	170	24	2	794	0 040	0 226	3		8 8	58*	2 92	
Egg	1	50		7	5	73	0 027	0 112	1 5	800	75	125	0 03	
Fat (butter)	½ c melted	80			48	432	0 008	0 008		16 0				
Milk	1 c	240	12	8	9 5	166	0 283	0 223	0 5	481	125	523	0 2*	
Sugar	3 T	45	45			180								
Salt	1 t													
Baking powder	½ t													
11 muffins medium	2½ d		277	39	64 5	1645	0 358	0 569	5	2381	1078	12 0	3 17	
1 muffin medium	2½ d		19	3 2	5 5	137	0 030	0 047	0 4	215	86	103	0 27	
Muffins cornmeal														
Flour	1 c	112	85	12	1	397	0 040	0 113	1 5		414	291	1 46	
Cornmeal	½ c	120	88	10	4	428	0 040	0 194	1 *	900	540	158	1 70	
Egg	1	50		7	5	73	0 027	0 112	1 5	800	75	125	0 03	
Milk	1 c	240	12	8	9 5	166	0 283	0 223	0 5	481	125	523	0 2	
Fat (butter)	½ c melted	80			48	432	0 008	0 008		16 0				
Sugar	3 T	45	45			180								
Baking powder	½ t													
Salt	1 t													
10 muffins	2½ d		230	37	67 5	1646	0 358	0 569	4 7	3481	1154	1088	2 91	
1 muffin	2½ d		19 2	3	5 6	140	0 030	0 053	0 4	290	96	91	0 24	
Rolls														
Flour bread	2½ c	280	212 5	30	2 5	993	0 060	0 28*	4		1035	7 9	3 65	
Sugar	2 T	■	30			1 0								
Fat (lard)	2 T	30			30	270								
Milk scalded	1 c	240	1	8	9 5	166	0 283	0 223	0 5	481	125	523	0 22	
Yeast cake	1	14	2	2		16					69	5*		
14 to 17 rolls	2 d		256 5	40	42 0	1562	0 333	0 505	4 5	481	127 9	1503	3 87	
1 roll	2 d		16 3	2 5	2 6	91	0 021	0 032	0 3	9	7	91	0 24	
Cakes														
Plain Cake														
Fat (butter)	4 T	60			48	432	0 008	0 008		1670				
Sugar	1 c	240	240			980					823	562	2 9	
Flour cake	2 c	224	170	24	2	794	0 040	0 226	3		823	562	0 03	
Egg	1	50		7	5	73	0 027	0 112	1 5	800	75	125	0 18	
Milk	½ c	180	9	8	7	123	0 213	0 168	0 3	345	■	393		
Baking powder	2½ t													
Salt	1 t													
Vanilla	1 t													
13 cup cakes or an 8 inch cake			419	37	6*	238*	0 283	0 514	4 8	2465	895	1100	3 13	
1 cup cake or a 2-inch cube			26 2	2 3	3 9	149	0 018	0 032	0 3	154	82	62	0 20	

TABLE 18—Continued

Foods	Household Measure	Grams				Calo-ries	Grams		M ll grams	I U	Macro-grams	M cro-grams	M ll grams	Mlls grams
		Amount	Car-bo-hy drate	Pro-tein	Fat		Cal-cium	Phos-pho-rus						
Cakes—Continued														
White Cake														
Butter	½ c	80			64	5 2	0 011	0 011		2147				
Sugar	½ c	360	360			1 440								
Flour cake	2 c	224	170	24	2	794	0 040	0 226	3		8 3	552	2 92	
Milk	½ c	160	8	5 5	6 5	114	0 188	0 14*	0 3	306		343	0 14	
Egg wh tes	3	99		9		36	0 012	0 015				207	0 08	
Baking powder	½ t													
Salt	½ t													
Van illa	½ t													
½ cup cakes or an 8-inch cake														
1 cup cake or a 2-inch cube			533	33 3	72 8	2956	0 251	0 400	3 3	2453	911	1137	3 12	
			33 6	3 4	4 5	185	0 016	0 025	0 2	153	87	71	0 19	
Angel Cake														
Egg white	1 c (3-9)	2 0		27		108	0 036	0 045				6*1	0 18	
Sugar	½ c	300	300			1200								
Flour cake	1 c	112	85	12	1	397	0 020	0 113	1 5		414	291	1 45	
Salt	½ t													
Cream of tartar	½ t													
Vanilla	½ t													
Almond extract	½ t													
9-inch cake 3 inches deep—8 servings														
1 serving 3½ inch are 4½ by 3 inches			533	39	1	1 05	0 056	0 158	1 5		414	91	2 64	
			63 1	4 9	0 1	213	0 007	0 0*0	0 2		52	114	0 21	
Sponge Cake														
Eggs	8	300		43	30	438	0 162	0 672	9	3000	450	750	0 13	
Sugar	1 c	240	240			960								
Flour cake	1 c	112	85	12	1	397	0 0*0	0 113	1 5		414	*91	1 45	
Salt	½ t													
Lemon rind	½ gr													
Lemon juice	1 T	13	1			4	0 003	0 001	0 1		3		0 01	5
6-inch cake 3 inches deep—8 servings														
1 serving 3½ inch are 4½ x 3 inches			3 6	24	31	1799	0 153	0 788	10 6	3000	867	1041	3 63	5
			40 7	6 7	3 9	23	0 023	0 098	1 3	375	109	130	0 21	0 1
Bread														
Shortening (lard)	½ c				80	7 0								
Molasses	½ c	80	88	1		*92	0 205	0 0 4	7 4					
Sugar	½ c	80	80			3 0								
Eggs	2	30		7	5	72	0 0*7	0 21*	2 3	300		1 3	0 03	
Flour	1 c	112	85	12	1	397	0 0*0	0 113	1 5		414	*91	1 45	
Boiling water	½ c													
Salt	½ t													
Soda	½ t													
Baking powder	½ t													
Ginger	½ t													
Cinnamon	½ t													
8 servings														
1 serving	2 cu		2*1	20	68	1739	0 25-	0 249	10 4	300	439	415	1 47	
			27 6	2 5	10 7	217	0 03	0 031	1 3	63	61	5	0 19	

TABLE 18—Continued

Foods	Household Measure	Grams				Calo-ries	Grams		Milk Grams	I U	Micro-grams	Micro-grams	Mili-grams	Mili-grams
		Amount	Car-bohy-drates	Pro-tein	Fat		Cal-cium	Phos-pho-rus						
Cakes—Continued														
Gingerbread low cost†														
Fat (lard)	4 T melted	60			60	540								
Molasses	1 c	240	168	4		688	0 616	0 072	22 4					
Flour	2½ c	250	191	27	3	890	0 045	0 254	3 4		93*	655	3 29	
Soda	1 t													
Salt	½ t													
Ginger	1½ t													
Boiling water	½ c													
8 servings			359	31	62	2118	0 661	0 326	5 8		93*	655	3 29	
1 serving	2 cu		44 9	3 9	7 7	265	0 083	0 041	3 2		119	8*	0 41	
Cookies														
Sugar Cookies														
Butter or oleo-margarine	½ c	120			96	864	0 016	0 016		3240				
Sugar	½ c	180	180			720								
Egg	1	50		7	5	73	0 027	0 112	1 5	500	75	125	0 03	
Milk	2 T	30	1 5	1	1	19	0 036	0 078		58	16	65	0 03	
Flour	3 c	336	255	36	3	1191	0 060	0 339	4 5		1242	873	4 89	
Baking powder	1 t													
Vanilla	1 t													
25 very thin cookies	2½ d		436 5	44	105	867	0 139	0 493	6	3798	1333	1053	4 44	
1 very thin cookie	2½ d		5 1	0 5	1 2	34	0 007	0 008	0 1			13	0 05	
Oatmeal Macaroons														
Egg	1	50		7	5	73	0 077	0 112	1 5	500	75	125	0 03	
Sugar	½ c	120	120			480								
Butter melted	2 t	10			8	72	0 007	0 002		270				
Rolls Oats uncooked	2 c	240	144	40	16	880	0 123	1 008	12		175	820	3 70	
Salt	½ t													
Vanilla	1 t													
25 very thin cookies	2½ d		264	47	29	1605	0 157	1 172	13 5	770	18 7	645	3 22	
1 very thin cookie	2½ d		13 4	2 3	1 4	75	0 008	0 056	0 7		91	32	0 16	
Pastry														
Apple Pie														
Crust for 2 crust pie														
Flour	1½ c	168	127 5	18	1 5	593	0 030	0 170	2 3		621	437	2 19	
Fat (lard)	6 T				90	810								
Salt	½ t													
Water	6 T													
5 servings			127 5	18	91 5	1403	0 030	0 170	2 3		621	437	2 19	
1 serving			25 5	3 6	18 3	281	0 006	0 036	0 4		124	87	0 44	
Filling														
Apples	4 m	600	84	4	4	388	0 044	0 072	2 4	432	240	180	3	14
Sugar	1 c	160	160			640								
Flour	1 T	7	5	0 5		2*	0 001	0 007	0 1		26	13	0 09	
Butter	1 T	15			12	108	0 002	0 002		405				
Water	1- T													
Lemon canna-mom nutmeg as desired														

TABLE 18—Continued

Foods	Household Measure	Grams				Calo-ries	Grams		Mili-grams	I U	Micro-grams	Micro-grams	Mili-grams	Mili-grams
		Amount	Car-bo-ly-drates	Pro-tein	Fat		Cal-cium	Phos-phorus						
Pastry—Continued														
8 servings			249	4.8	16	1138	0.047	0.091	2.5	837	286	193	3.02	34
1 serving			10.8	0.9	3.3	23	0.009	0.016	0.5	167	88	77	0.82	3
Total for 8-inch pie			3.65	22.5	107.5	2561	0.077	0.251	4.8	837	887	635	5.29	24
Total for 1 serving	1 pie		.5	4.5	21.5	513	0.015	0.032	0.9	167	177	125	1.06	3
Lemon Meringue Pie														
Crust														
Flour	1 c	112	83	12	1	397	0.000	0.113	1.5		414	291	1.46	
Fat	4 T	60			60	540								
Salt	1 t													
Water	4 T													
1 crust 8-inch pie	8 servings		88	12	61	937	0.070	0.113	1.5		414	291	1.46	
1 serving	1 pie		17	2.4	14	187	0.004	0.022	0.3		83	58	0.29	
Filling														
Lemon juice	1 c	200	17	2	1	86	0.044	0.077	1.2		80		0.16	60
Egg yolks	2	36		6	10	114	0.048	0.212	3	1000	150	104	0.07	
Sugar	1 c	180	180			720								
Flour	5 T	35	88	2.5		110	0.005	0.035	0.5		130		0.45	
Butter	1 t	5			4	36	0.001	0.001		135				
Water boiling	1 c													
Lemon rind	1													
grated														
Salt	1 t													
8 servings			227	10.5	15	1065	0.038	0.270	4.7	1135	340	194	0.83	50
1 serving			44.5	2.1	3	213	0.019	0.054	0.9	227	88	88	0.17	18
Meringue														
Egg white	3	60		6		24	0.008	0.010				135	0.04	
Sugar	2 T	30	30			1.0								
Salt	1 t													
8 servings			30	6		144	0.008	0.010				135	0.04	
1 serving			6	1		29	0.001	0.001				27	0.01	
Total for 1 pie	8 d		337	28.5	76	2147	0.176	0.393	6.3	1133	754	623	0.83	80
Total for 1 serving	1 pie		67.5	5.7	15.2	429	0.044	0.050	1.2	227	151	114	0.42	19
Peach Shortcake														
Crust														
Flour	1 1/2 c	168	127.6	18	1.5	593	0.030	0.170	2.3		6.1	437	2.19	
Butter or fat	4 T	60			48	432	0.008	0.009		1670				
Milk	1 c	120	6	4	5	85	0.141	0.111	0.3	231	63	272	0.11	1
Sugar	1 T	15	15			60								
Baking powder	2 t													
Salt	1 t													
4 servings			168.3	2	54.5	1170	0.170	0.279	2.6	1551	634	699	2.30	1
1 serving	3 cake		37.1	.5	13.6	29	0.043	0.072	0.6	46	171	174	0.57	
Filling														
Peaches	8 m	800	96	4		400	0.050	0.15	3.4	12000	360	360	7.60	88
Sugar	4 T	60	60			240								
4 servings			156	4		640	0.050	0.15	3.4	12000	360	360	7.60	88
1 serving			39	1		160	0.012	0.038	0.6	3000	90	90	1.90	19
Total for 4 servings			304.5	26	54.5	1810	0.39	0.441	6.0	13531	1044	1059	9.90	88
Total—1 shortcake	3 x 2 1/2 d		8.1	6.5	13.6	45	0.065	0.110	1.2	3497	761	54	2.47	19

TABLE 18—Continued

Foods	Household Measure	Grams				Calo-ries	Grams		Mili-grams	I U	Micro-grams	Micro-grams	Mili-grams	Mili-grams
		Amount	Car-bo-hy-drate	Pro-tein	Fat		Cal-cium	Phos-pho-rus						
<i>Puddings</i>														
Bread Pudding														
Milk	2 c	480	24	16	19	332	0 566	0 446	1 0	92*	250	1046	0 44	
Bread crumbs or cubes	1 c	75	40	6	12 5	198	0 060	0 075	0 8		165	130	0 68	
Sugar	1 c	60	60			240								
Egg 1 or 2 yolks	1 c	15		3	5	57	0 074	0 106	1 5	500	.5	5*	0 01	
Salt	1 t													
Vanilla	1 t													
5 servings			124	25	36 5	577	0 640	0 677	3 3	1472	490	1275	1 13	
1 serving	3 hp T		24 8	5	7 3	185	0 129	0 125	0 7	284	■	245	0 23	
<i>Cornstarch Pudding</i>														
Milk	1 c cold	60	3	2	2 5	43	0 070	0 055	0 1	115	31	131	0 05	
Milk	1 1/2 c scalded	300	15	10	12	209	0 353	0 278	0 6	876	156	654	0 27	
Cornstarch	3 T	■	27			108								
Sugar	1 c	60	60			240								
Salt	1 t													
Vanilla	1 t													
4 servings			105	12	14 5	600	0 423	0 333	0 7	691	187	785	0 37	
1 serving	3 r T		26 2	3	3 6	150	0 106	0 083	0 2	173	49	196	0 08	
<i>Custard</i>														
Egg	3	150		21	15	219	0 091	0 336	4 5	1500	2 5	375	0 60	
Milk scalded	2 c	480	24	16	19	332	0 566	0 446	1	92*	250	1046	0 44	
Sugar	1 c	60	60			240								
Salt	1 t													
Vanilla	1 t													
4 servings			84	37	34	791	0 647	0 782	5 5	2472	475	1421	0 63	
1 serving	3 hp T		21	9 2	8 5	198	0 167	0 196	1 4	605	117	355	0 13	
<i>Tapioea Cream</i>														
Milk scalded	2 c	480	24	16	19	332	0 566	0 446	1 0	92*	250	1046	0 44	
Tapioea minute	2 1/2 T	■	32 5			120	0 003	0 003	0 5			■		
Eggs	2	100		14	10	146	0 054	0 224	3 0	1000	150	250	0 06	
Sugar	1 c	60	60			240								
Salt	1 t													
Vanilla	1 t													
5 servings			136 5	30	79	9 8	0 675	0 673	4 5	19 2	400	1334	0 50	
1 serving	1 hp T		27 2	6	5 8	186	0 125	0 134	0 9	384	■	257	0 10	
<i>Gelatin Desserts</i>														
Lemon Jelly														
Gelatin	1 T	■		9		36								
Lemon juice	1 c	67	5 5	0 5		29	0 014	0 007	0 4		20		0 05	30
Sugar	1 c	120	120			480								
Water cold	1 c													
Water hot	1 1/2 c													
4 servings			175 5	9 5		545	0 014	0 007	0 4		20		0 05	30
1 serving	1 hp T		31 4	2 4		136	0 003	0 002	0 1		5		0 01	7
<i>Spanish Cream</i>														
Gelatin	2 t	7		6		24								
Milk cold	1 c	60	3	2	2 5	43	0 010	0 055	0 1	115	31	131	0 05	
Milk scalded	1 1/2 c	31*	15 5	10 5	1 5	216	0 368	0 290	0 6	599	123	690	0 79	
Eggs	2	100		14	10	146	0 054	0 274	3	1000	150	■	0 06	
Sugar	1 c	■	60			240								
Salt	1 t													
Vanilla	1 t													

TABLE 18—Concluded

Foods	Household Measure	Grams				Calories	Grams		Milk grams	I U	Micro-grams	Micro-grams	Milk grams	Milk grams
		Amount	Carbohy- drate	Protein	Fat		Calcium	Phosphorus						
Gelat n Desserts—Continued														
8 servings			385	32.5	25	880	0.892	0.389	3.7	1714	344	1051	0.40	4.5
1 serving	3 hp T		13	6.5	5	176	0.093	0.112	0.7	313	99	212	0.05	0.9
Frozen Desserts														
Orange Ice														
Orange Juice	1 c	200	6	1		105	0.045	0.038	0.8	450	270	100	0.44	105
Lemon Juice	2 T	25	2			8	0.005	0.003	0.1		7		0.02	11
Sugar	1 c	240	240			960								
Water	1 1/2 c													
Orange rind gr	2													
Orange coloring if desired														
8 servings			283	2		10.5	0.053	0.039	0.9	450	327	100	0.45	119
1 serving	4 hp T		53.6	0.2		213	0.010	0.007	0.3	90	58	20	0.02	24
Orange Milk Sherbet														
Orange Juice	1 c	200	6	1		105	0.045	0.038	0.8	450	270	100	0.44	105
Lemon Juice	2 T	25	2			8	0.005	0.003	0.1		7		0.02	11
Sugar	1 c	240	240			960								
Milk	1 1/2 c	360	18	12	14	249	0.424	0.334	0.8	1114	189	754	0.33	4
Orange rind gr	2													
Orange coloring if desired														
8 servings			258	13	14	13.5	0.477	0.373	1.7	114	415	834	0.79	223
1 serving	4 hp T		57.2	2.8	2.8	263	0.095	0.074	0.3	27.9	83	173	0.16	44
Chocolate Mousse														
Gelatin	3 T	5		4.5		18								
Milk cold	1 c	60	3	2	2.5	43	0.070	0.055	0.1	115	31	131	0.05	
Milk scalded	1 c	10	5	4	5	35	0.141	0.111	0.3	231	63	5	0.11	
Chocolate	1 1/2 cs	45	18.5	6	2	274	0.040	0.04	1		35			
Sugar	1 c	160	160			640								
Heavy cream	2 c	450	10	10	184	273.4	0.394	0.304	0.8	1030.9	144	87		
Vanilla	2 t													
10 servings			195.5	32.5	21.5	284	0.635	0.464	3.4	1115.4	277	1085	0.16	
1 serving	3 hp T		19.5	3.2	2.1	28.4	0.063	0.046	0.3	111.5	27.7	108.5	0.01	
White Sauce														
Thin White Sauce for cream toast and cream soup														
Butter	1 T	18			12	105	0.00	0.00		405				
Flour	1 T	7	5	0.5			0.001	0.007	0.1		25	15	0.02	
Milk	1 c	240	12	8	9.5	186	0.253	0.223	0.5	451	125	523	0.44	
Salt	1 t													
2 servings			17	8.5	21.5	29.9	0.258	0.23	0.6	87.8	131	541	0.31	
1 serving	1 c		8.5	4.2	10.7	14.9	0.129	0.115	0.3	43.9	65.5	270.5	0.15	
Medium White Sauce for cream and scalloped dishes														
Butter	2 T	30			24	216	0.004	0.004		810				
Flour	2 T	14	10	1		41	0.00	0.014			5	34	0.13	
Milk	1 c	240	12	8	9.5	186	0.253	0.223	0.5	451	125	523	0.44	
4 servings			2	8	33.5	4.6	0.259	0.247	0.7	177.1	177	552	0.43	
1 serving	1 c		0.5	2.2	8.4	105	0.064	0.060	0.2	31.8	44	138	0.10	

TABLE 19
CARBOHYDRATE
VEGETABLES AND FRUITS ARRANGED ACCORDING TO THEIR AVERAGE
PERCENTAGE COMPOSITION OF CARBOHYDRATE*

<i>Vegetables</i>				
5 Per cent	10 Per cent	15 Per cent	20 Per cent	Over 20 Per cent
Asparagus 8 st	Beans string $\frac{1}{2}$ c	Parsnips $\frac{1}{2}$ c	Beans lima	Beans lima $\frac{1}{2}$ c
Asparagus (C) 7 st	Beets 2 m	Peas $\frac{1}{2}$ c	dried ck $\frac{1}{2}$ c	Potato sweet 1 sm
Beans string (C) $\frac{1}{2}$ c	Brussels sprouts 7 sm		Beans navy	
Beet greens $\frac{1}{2}$ c	Carrots 1 L		dried ck $\frac{1}{2}$ c	
Cabbage $\frac{1}{2}$ c	Dandelion greens $\frac{1}{2}$ c		Corn $\frac{1}{2}$ c	
Cabbage Chinese 1 c	Onions 2 m		Peas dried ck $\frac{1}{2}$ c	
Cauliflower $\frac{1}{2}$ c	Peas (C) 4 T		Potato white 1 sm	
Celery 4 st	Pumpkin $\frac{1}{2}$ c			
Chard $\frac{1}{2}$ c	Rutabaga $\frac{1}{2}$ c			
Cucumber 1 m	Squash winter $\frac{1}{2}$ c			
Eggplant $\frac{1}{2}$ c	Turnip $\frac{1}{2}$ c			
Lettuce $\frac{1}{2}$ hd				
Pepper 1 L				
Radishes 10				
Sauerkraut $\frac{1}{2}$ c				
Spinach $\frac{1}{2}$ c				
Squash summer $\frac{1}{2}$ c				
Tomatoes 1 m				
Tomatoes (C) $\frac{1}{2}$ c				
<i>Fruits</i>				
Avocado $\frac{1}{2}$ m	Blackberries $\frac{1}{2}$ c	Apple 1 sm	Peaches (C) 2 H	Applesauce (C) $\frac{1}{2}$ c
Rhubarb 1 c	Cantaloup $\frac{1}{2}$	Apricots 3 m	Pears (C) 2 H	Apricots (C) 4 sm H
	Cranberries 1 c	Blueberries $\frac{1}{2}$ c	Pineapple (C) 1 sl	Banana 1 m
	Currants $\frac{1}{2}$ c	Cherries 25 sm		Dried
	Gooseberries $\frac{1}{2}$ c	Grapefruit (C) 8 sec		Apricots 6 H
	Grapefruit $\frac{1}{2}$ m	tions		Currants 2 T
	Lemon 1 L	Grapes 20		Dates 3-4
	Orange 1 m	Pear 1 m		Figs 2 sm
	Peach 1 m	Pineapple 1 sl		Peaches 2 H
	Strawberries 10 L	Plums 3 av		Prunes 3 m
	Tangerine 2 sm	Raspberries $\frac{1}{2}$ c		Raisins 2 T
	Watermelon $\frac{1}{2}$ thin slice			

Following the Joelin nomenclature

TABLE 20

AVAILABLE CARBOHYDRATE IN VEGETABLES AND FRUITS

(Figures taken from *The Carbohydrate Content of Foods*, by H. A. McCance and R. D. Lawrence
Med. Res. Council, Special Report Series 135 H. M. Stationery Office, 1929
London, England)

Grams	Food	Household Measure	Grams
<i>Vegetables</i>			
100	Asparagus	8 st, 4 inches long	15
100	Beans, butter or lima	$\frac{1}{2}$ c or 4 r T	160
100	Beans, French or string	$\frac{1}{2}$ c or 4 r T	13
100	Beans, Haricot or navy	$\frac{1}{2}$ c or 3 r T	167
100	Beets	2 sm	80
100	Brussels sprouts	9 m	27
100	Cabbage	5 r T, ck	10
100	Carrots	1 L	59
100	Cauliflower	6 r T	13
100	Celery	4 st raw	10
100	Celery	6 r T, ck	05
100	Cucumber	$\frac{1}{2}$ m or 10 sl	170
100	Endive	2 m st	26
100	Lettuce	$\frac{1}{2}$ head or 10 leaves	07
100	Kale	1 s	05
100	Onions	2 m	54
100	Parsnips	1 L	95
100	Peas	4 T	128
100	Potatoes	1 sm, old	192
100	Pumpkin	$\frac{1}{2}$ c, cu, raw	25
100	Radishes	15-20 m	16
100	Spinach	4 r T	13
100	Tomatoes	1 m	24
100	Turnips	4 r T cu	30

AVAILABLE CARBOHYDRATE OF FRUITS

(Edible Portion)

(Figures taken from *Available Carbohydrate of Fruits* by E. M. Widdowson and R. A. McCance
The Biochemical Journal Vol. XXIX p. 151 1935, University Press
Cambridge, England)

100	Apples Empire eating	1 sm	1217
100	Apricots	3 m	560
100	Banana	1 m	1920
100	Blackberries	$\frac{1}{2}$ c	636
100	Cherries	20 sm	1194
100	Cranberries	$\frac{1}{2}$ c	354
100	Grapefruit	$\frac{1}{2}$ m	533
100	Grapes white	24 av	1613
100	Oranges	1 m	851
100	Orange juice	$\frac{1}{2}$ c sc	944
100	Peaches	1 m	906
100	Pineapple	1 sl, $\frac{1}{2}$ inch thick	1163
100	Plums	3-4 m	960
100	Raspberries	4 r T	561
100	Strawberries	10 L	621

TABLE 21
CARBOHYDRATE EQUIVALENTS
Approximately 10 grams Various fruits equivalent to 1 orange

Food	Household Measure	Grams			
		Amount	Carbohy- drate	Protein	Fat
Apple	$\frac{1}{2}$ m	75	10.5	0.5	0.5
Apricots (C)	2 H	40	10.0		
Apricots, dried	3 H	15	10.0	1.0	
Apricots, fresh	2 L	70	10.0		
Banana	$\frac{1}{2}$ m	50	11.5	0.5	
Blackberries	$\frac{1}{2}$ c	100	12.0	1.0	1.0
Blueberries	7 T	67	10.0	0.5	0.5
Cantaloup	$\frac{1}{2}$ melon	100	9.5	0.5	
Cherries, sweet	17 sm	67	10.0	0.5	0.5
Cranberries	1 c	100	11.5	0.5	0.5
Currants	$\frac{1}{2}$ c	100	12.5	1.5	0.5
Currants dried	1 T	15	10.5	0.5	
Dates	2	15	11.0		0.5
Figs, dried	1 sm	15	11.0	0.5	
Gooseberries	$\frac{2}{3}$ c	100	10.0	1.0	0.5
Grapefruit	$\frac{1}{2}$ m	100	10.0	0.5	
Grapefruit (C)	6 sections	70	10.0	0.5	
Grapes	13	67	10.0	0.5	0.5
Lemon	1 $\frac{1}{2}$ L	125	10.5	1.0	0.5
Orange	1 m	100	11.0	1.0	
Orange juice	$\frac{1}{2}$ c sc	100	12.5	0.5	
Peach	1 m	100	12.0	0.5	
Peach (C)	1 H, $\frac{1}{2}$ T J	50	9.0		
Peach, dried	1 H	15	10.5	0.5	
Pear	$\frac{1}{2}$ m	67	10.5	0.5	0.5
Pear (C)	1 H, $\frac{1}{2}$ T J	50	9.0		
Pineapple	$\frac{1}{2}$ sl, $\frac{1}{2}$ in	75	10.5	0.5	
Pineapple (C)	$\frac{1}{2}$ sl, $\frac{1}{2}$ T J	50	10.5		
Plums	2 L	80	10.5		
Prunes	1 L or 2 sm	15	10.5		
Raisins	1 T	15	11.0	0.5	0.5
Raspberries, red	$\frac{1}{2}$ c	70	10.0	0.5	0.5
Rhubarb	2 $\frac{1}{2}$ c	250	10.0	1.0	
Strawberries	13 L	130	10.5	0.5	0.5
Tangerine	2 sm	100	11.0	1.0	0.5
Watermelon	1 thin sl	150	10.5	0.5	

Other food constituents as well as carbohydrate should be considered in using these equivalents

TABLE 22
CARBOHYDRATE EQUIVALENTS

Approximately 10 grams Various foods equivalent to 2 teaspoons of sugar

Food	Household Measure	Grams			
		Amount	Carbohy- drate	Protein	Fat
Beans baked (C)	2 T	50	10	3.5	1
Biscuit	1 b 2½" d	—	12.5	2	4
Bread	¾ or 1 thin sl	20	10	2	0.5
Cake, angel	1" arc 4½ x 3"	—	12	1	
Cake, plain	1" cu	—	13	1	2
Cake, sponge	1" arc 4½ x 3"	—	10	0.5	1
Cake, white	¾ 2 cu	—	11	1	1.5
Cookies oatmeal	¾ thin 2½" d	—	10	2	1
Cookies sugar	2 thin 2½" d	—	10	1	2
Cornflakes	¾ c	15	12.5	1	
Cornstarch	1 T	10	9		
Corn syrup	2 t	10	9		
Crackers	2 Unedas	12	9	1	1
	3 saltines	12	9	1.5	1.5
	1½ graham	15	11	1.5	1.5
Flour	2 T	14	10	1	
Fruit					
5 per cent	2 s	200	10	1	
10 per cent	1 s	100	10	1	
15 per cent	1 very sm s	75	10.5	0.5	
Over 15 per cent					
Banana	¾ m	50	11.5	0.5	
Figs dried	1 sm	15	11	0.5	
Prunes	2 sm or 1 L	15	10.5		
Raisins	1 T	15	11	0.5	0.5
Gingerbread	¾ 2 sq	—	11	1	2
Ice orange	1 T	—	10.5		
Jam or jelly	2 t	14	10		
Jello lemon	½ s	33	10.5	1	
Macaroni ck	6 T	75	11	2	
Mola	1 sc T	15	10.5		
Muffin cornmeal	¾ muffin 2½" d	—	9.5	1.5	2
Muffin plain	¾ muffin 2½" d	—	9.5	1.5	3
Oats rolled ck	6 T	90	9	2.5	1
Pudding bread	2 T	—	12.5	2.5	3.5
Pudding cornstarch	2 T	—	13	1.5	1.5
Pudding tapioca	2 t	—	9	2	2
Ry krip	2	14	10	2	
Sherbet orange, milk	1½ T	—	11	0.5	0.5
Shredded wheat	½ b	15	12	2	
Sugar	2 t or 2 lumps	10	10		
Tapioca	1 sc T	12	10		
Vegetables					
5 per cent	2½ s	250	10	3.5	
10 per cent	1 s	100	8.5	2	
15 per cent	5 T peas	63	11	4	
Over 20 per cent					
Corn	¾ m ear	50	10	1.5	0.5
Corn	2 T (C)	50	9.5	1.5	0.5
Potato	¾ sm	50	9.5	1	

Other food constituents as well as carbohydrate should be considered in using equivalents

TABLE 23
CARBOHYDRATE EQUIVALENTS

Approximately 15 grams Various fruits equivalent to 1 small apple

Food	Household Measure	Grams			
		Amount	Carbohy- drate	Protein	Fat
Apricots	3 m	100	13		
Apricots (C)	2 H $\frac{1}{2}$ T J	60	15		
Apricots, dried	4 $\frac{1}{2}$ H	23	15	1	
Banana	$\frac{1}{2}$ m	75	17	0.5	
Blackberries	10 T	125	15	1	1
Blueberries	$\frac{1}{2}$ c	100	15	0.5	0.5
Cantaloup	$\frac{1}{2}$ melon	133	10	0.5	
Cherries, sweet	25 sm	100	15	1	0.5
Cranberries	1 $\frac{1}{2}$ c	125	14.5	0.5	0.5
Currants	$\frac{1}{2}$ c	125	18.5	2	0.5
Currants, dried	4 t	20	14.5	0.5	
Dates	2 $\frac{1}{2}$	20	14		0.5
Figs	1 $\frac{1}{2}$ sm	20	15.5	0.5	
Gooseberries	1 c	150	15	1.5	0.5
Grapefruit	$\frac{1}{2}$ m	150	15	0.5	
Grapefruit (C)	8 sections	100	14	0.5	
Grapefruit juice (C)	$\frac{1}{2}$ c sc	150	15	0.5	
Grapes	20	100	15	1	1
Lemons	2 L	200	17	2	1
Oranges	1 $\frac{1}{2}$ m	150	16.5	1.5	
Orange juice	$\frac{1}{2}$ c	100	14	0.5	
Peach	1 $\frac{1}{2}$ m	125	15	0.5	
Peaches (C)	2 sm H, 1 T J	85	15	0.5	
Peaches, dried	2 sm H	23	15	1	
Pear	1 m	100	16	0.5	0.5
Pear (C)	2 sm H, 1 T J	85	15	0.5	
Pineapple	1 sl $\frac{1}{2}$ "	100	14	0.5	
Pineapple (C)	$\frac{1}{2}$ sl, 1 T J	75	15.5	0.5	
Pineapple juice (C)	$\frac{1}{2}$ c sc	100	14	0.5	0.5
Plums	3 av	100	13	0.5	
Prunes	2 m	20	14	0.5	
Raisins	1 $\frac{1}{2}$ T	20	14.5	0.5	0.5
Raspberries, red	$\frac{1}{2}$ c	100	14.5	1	0.5
Strawberries	20 L	200	16	1	1
Tangerine	3 sm	150	10.5	1.5	0.5
Watermelon	2 thin sl	200	14	1	

Other food constituents as well as carbohydrate should be considered in using these equivalents

TABLE 24
CARBOHYDRATE EQUIVALENTS

Approximately 15 grams Various foods equivalent to 1 slice of bread or 1 very small potato

Food	Household Measure	Grams			
		Amount	Carbohydrate	Protein	Fat
Beans baked (C)	2 r T	75	13	4.5	1.5
Biscuit	1½ b 2" d	—	15.5	2.5	5
Bread	1 sl	30	15	3	0.5
Cake angel	1" arc 4½ x 3	—	14.5	1.5	
Cake plain	1" cu	—	16.5	1	2.5
Cake sponge	1½ arc 4½ x 3	—	10	2.5	1.5
Cake white	½ 2" cu	—	13.5	1	2
Cookies oatmeal	1 thin 2½" d	—	12.5	2.5	1.5
Cookies sugar	3 thin 2½" d	—	16	1.5	3
Cornstarch	1½ T	15	12.5		
Corn syrup	1 T	15	13		
Crackers	3½ Unedas	21	16	1.5	1.5
	2 graham	20	16	2	2
	5 saltines	20	16	2.5	2.5
	3 T sifted	21	16	1.5	
Flour white					
Fruit					
5 per cent	3 s	300	16	1.5	
10 per cent	2 sm s or 1 L	150	16	1.5	
15 per cent	1 sv	100	14	0.5	
20 per cent	½ sv	80	16	0.5	
Gingerbread	½ 2" cu	—	16	1.5	2.5
Ice orange	1 hp f	—	12.5		
Jam or jelly	1 T	20	16		
Jello lemon	½ s	50	16.5	1	
Macaroni, ck	½ c	100	14.5	3	
Muffin, cornmeal	½ muffin 2½ d	—	14	2	4
Muffin plain	½ muffin 2½" d	—	14	2	4
Molasses	1½ T sc	23	16.5	0.5	
Oats rolled ck	1 sm s	145	16	4	1.5
Pudding bread	2 hp T	—	16.5	3	5
Pudding cornstarch	2 r T	—	17	2	2
Pudding tapioca	1 T	—	12.5	3	3
Ry Krisp	3 crackers	21	16	3	
Sherbet orange milk	1 hp T	—	14	0.5	0.5
Shredded wheat	½ biscuit	20	16	2	
Sugar	3 t or 3 lumps	15	16		
Tapioca	1 T	15	13		
Vegetables					
5 per cent	4 s	400	16	6	
10 per cent	2 s	200	17	4	
Corn (C)	3 r T	80	16	2.5	1
Corn fresh	1 sm ear	75	16	2.5	1

Other food constituents as well as carbohydrate should be considered in using these equivalents

TABLE 23
CARBOHYDRATE EQUIVALENTS

Approximately 15 grams Various fruits equivalent to 1 small apple

Food	Household Measure	Grams			
		Amount	Carbohy- drate	Protein	Fat
Apricots	3 m	100	18		
Apricots (C)	2 H, $\frac{1}{2}$ T J	60	15		
Apricots, dried	$4\frac{1}{2}$ H	23	15	1	
Banana	$\frac{1}{2}$ m	75	17	0.5	
Blackberries	10 T	125	18	1	1
Blueberries	$\frac{1}{2}$ c	100	15	0.5	0.5
Cantaloup	$\frac{1}{2}$ melon	133	19	0.5	
Cherries, sweet	25 sm	100	15	1	0.5
Cranberries	$1\frac{1}{2}$ c	125	14.5	0.5	0.5
Currants	$\frac{1}{2}$ c	125	15.5	2	0.5
Currants, dried	4 t	20	14.5	0.5	
Dates	$2\frac{1}{2}$	20	14		0.5
Figs	$1\frac{1}{2}$ sm	20	15.5	0.5	
Gooseberries	1 c	150	15	1.5	0.5
Grapefruit	$\frac{1}{2}$ m	150	15	0.5	
Grapefruit (C)	8 sections	100	14	0.5	
Grapefruit juice (C)	$\frac{1}{2}$ c sc	150	15	0.5	
Grapes	20	100	15	1	1
Lemons	2 L	200	17	2	1
Oranges	$1\frac{1}{2}$ m	150	16.5	1.5	
Orange juice	$\frac{1}{2}$ c	100	14	0.5	
Peach	$1\frac{1}{2}$ m	125	15	0.5	
Peaches (C)	2 sm H, 1 T, J	85	15	0.5	
Peaches, dried	2 sm H	23	18	1	
Pear	1 m	100	16	0.5	0.5
Pear (C)	2 sm H, 1 T J	85	15	0.5	
Pineapple	1 sl $\frac{1}{2}$ "	100	14	0.5	
Pineapple (C)	$\frac{1}{2}$ sl, 1 T J	75	15.5	0.5	
Pineapple juice (C)	$\frac{1}{2}$ c sc	100	13	0.5	0.5
Plums	3 av	100	13	0.5	
Prunes	2 m	20	14	0.5	
Raisins	$1\frac{1}{2}$ T	20	14.5	0.5	0.5
Raspberries, red	$\frac{1}{2}$ c	100	14.5	1	0.5
Strawberries	20 L	200	16	1	1
Tangerine	3 sm	150	16.5	1.5	0.5
Watermelon	2 thin sl	200	14	1	

Other food constituents as well as carbohydrate should be considered in using these equivalents

TABLE 24
CARBOHYDRATE EQUIVALENTS

Approximately 15 grams Various foods equivalent to 1 slice of bread or 1 very small potato

Food	Household Measure	Grams			
		Amount	Carbohy- drate	Protein	Fat
Beans baked (C)	2 r T	75	13	4.5	1.5
Biscuit	1½ b 2" d	—	15.5	2.5	5
Bread	1 sl	30	15	3	0.5
Cake angel	1 arc 4½ x 3	—	14.5	1.5	
Cake plain	1" cu	—	16.5	1	2.5
Cake sponge	1½ arc 4½ x 3	—	10	2.5	1.5
Cake white	½ 2 cu	—	13.5	1	2
Cookies oatmeal	1 thin 2½ d	—	13.5	2.5	1.5
Cookies, sugar	3 thin 2½ d	—	15	1.5	3
Cornstarch	1½ T	15	13.5		
Corn syrup	1 T	15	13		
Crackers	3½ Unedas	21	15	1.5	1.5
	2 graham	20	15	2	2
	5 saltines	20	15	2.5	2.5
	3 T sifted	21	15	1.5	
Flour white					
Fruit					
8 per cent	3 s	300	15	1.5	
10 per cent	2 sm s or 1 L	150	15	1.5	
15 per cent	1 sv	100	14	0.5	
20 per cent	½ sv	80	15	0.5	
Gingerbread	½ 2 cu	—	15	1.5	2.5
Ice orange	1 hp T	—	13.5		
Jam or jelly	1 T	20	15		
Jello lemon	½ s	50	15.5	1	
Macaroni ck	½ c	100	14.5	3	
Muffin cornmeal	½ muffin 2½ d	—	14	2	4
Muffin plain	½ muffin 2½ d	—	14	2	4
Molasses	1½ T so	23	15.5	0.5	
Oats rolled ck	1 sm s	145	15	4	1.5
Pudding bread	2 hp T	—	16.5	3	5
Pudding, cornstarch	2 r T	—	17	2	2
Pudding tapioca	1 T	—	13.5	3	3
Ry Krisp	3 crackers	21	15	3	
Sherbet orange milk	1 hp T	—	14	0.5	0.5
Shredded wheat	½ biscuit	20	15	2	
Sugar	3 t or 3 lumps	15	15		
Tapioca	1 T	15	13		
Vegetables					
5 per cent	4 s	400	15	4	
10 per cent	2 s	200	17	4	
Corn (C)	3 r T	80	15	2.5	1
Corn fresh	1 sm ear	70	15	2.5	1

Other food constituents as well as carbohydrate should be considered in using these equivalents

TABLE 25
 PROTEIN EQUIVALENTS
 Approximately 7 grams Various foods equivalent to 1 egg

Food	Household Measure	Grams			
		Amount	Carbohydrate	Protein	Fat
*Almonds	24-30 nuts	30	5	6.5	16.5
Bacon	10 sl full length	60		6	80
*Beans, baked (C)	3 r T	100	19.5	7	2.5
*Beans, lima, dry	3 T	45	30	8	0.5
Beans, lima, fresh	$\frac{1}{2}$ c	100	23.5	7.5	1
*Beans, navy, dry	2 T	30	18	7	0.5
Beans, soy, dry	$1\frac{1}{2}$ T	23	2.5	7.5	4
*Bread	$2\frac{1}{2}$ sl	75	37.5	7.5	1
Cereal, oats dry	6 T ($1\frac{1}{2}$ c ck)	45	27	7.5	3
Cheese, American	1 oz or 2 T	30	1	7	10
Cheese, cottage, skim	2 T	30	1	5	
Cheese, cream	3 T	45		7.5	19.5
*Crackers, Unedas	14	84	63	7	7
Crackers graham	7	70	52.5	7	7
Cream, light	1 c	240	12	8	48
Egg	1	50		7	5
Fish av	$1\frac{1}{2}$ oz	45		8	2
*Gelatin	$\frac{1}{2}$ T	7		6.5	
Liver, beef	1 oz	30	0.5	6	1.5
Liver, calves	1 oz	30	1	5.5	1.5
Meat, lean	1 oz	30		6.5	2.5
Meat, med fat	$1\frac{1}{2}$ oz	45		7.5	9.5
Poultry, dark	1 oz	30		6.5	1.5
Poultry light	1 oz	30		7	1
Milk	1 c	240	12	8	9.5
*Peanut butter	$1\frac{1}{2}$ T	23	3.5	6.5	10.5
*Peanuts, shelled	33-35 nuts	30	7	8	11.5
Peas, dried	2 T	30	18.5	7.5	0.5
*Potato	2 L or 3 sm	300	57	6	
Vegetables-5 per cent	5 s	500	20	7.5	
Vegetables-10 per cent	3 s	300	25.5	5	

Other food constituents as well as protein should be considered in using these equivalents

* Incomplete protein

TABLE 26
SOME COMMON FOODS ARRANGED ACCORDING TO THEIR CONTENT OF FAT IN
TERMS OF AVERAGE SERVINGS†

4 Grams or More	3.9 to 3 Grams	2.9 to 2 Grams	1.9 to 1 Gram	Less than 1	Fat Free
<i>Bread Cereals and Crackers</i>					
		Oats rolled	Graham cracker Noodles Rice white	Bread Ralston Rice, brown	
<i>Dairy Products</i>					
+Butter Cheese American Cream Cream heavy Egg yolk	*Cream light		**Milk Milk skim	Buttermilk Cheese, cottage	Egg white
<i>Fruits</i>					
Avocado			Blackberries Dates Grapes Raisins		
<i>Meat Fish and Poultry</i>					
**Bacon Halibut Liver Mackerel Meat and poultry Lean **Medium fat Salmon Shad		Meat **Lean	**Liver Oysters **Poultry Smelts	Flounder	Cod Haddock
<i>Miscellaneous</i>					
Cake Plain White Doughnut Gingerbread Ice Cream Nuts—all kinds Oil Pie	+Mayonnaise	+Chocolate	Cake sponge	Cake angel +Cocoa	Corn syrup Gelatin Ginger ale Honey Jello Jelly Maple syrup Marmalade Molasses Sugar Tapioca
<i>Vegetables</i>					
**Beans soy dried	++Olive green	Beans baked (C.)	Beans lima Corn		
<i>Average Servings</i>					
Bread		30 grams	Milk		240 grams
Cereals dry		30 grams	Meat fish or poultry		90 grams
Cheese		30 grams	Nuts		30 grams
Fruits fresh		100 grams	Vegetables fresh		100 grams
Fruits dried		30 grams	Vegetables dried (legumes)		30 grams

† Cf. Table of Food Values and Measures (Table 15) for amounts of average servings.
Other Servings: 15 gram serving, ** 30 gram serving, + 5 gram serving, ++ 10 gram serving

TABLE 27
FAT EQUIVALENTS

Approximately 4 grams Various foods equivalent to 1 teaspoon of butter

Food	Household Measure	Grams			
		Amount	Carbohy- drate	Protein	Fat
Bacon	1 sl full length	0		0.5	4
Butter	1 t	5			4
Cheese, American	$\frac{1}{2}$ oz or 1 T	15	0.5	3.5	5
Cheese, cream	2 t	10		1	4
Cream, heavy	1 T	15	0.5	0.5	5.5
Cream, light	$1\frac{1}{2}$ T	22	0.5		4.5
Egg	1	50		7	5
French dressing	$\frac{1}{2}$ T	8	0.5		4
Ice cream, commercial	$2\frac{1}{2}$ T	30	6	1	4
Liver, beef	3 oz	90	1.5	18.5	4
Mayonnaise	1 t	5			3.5
Meat lean	2 oz	60		13	5
Meat med fat	$\frac{3}{4}$ oz	23		3.5	5
Poultry, dark	3 oz	90		19.5	4.5
Poultry light	4 oz	120		23	4
Milk whole	$\frac{1}{2}$ c	120	6	4	5
Oil	1 t	5			5
Olives, green	$1\frac{1}{2}$ m	15	1.5		4.5
Olives ripe	3 sm	15	0.5		3.5
Peanut butter	2 t	10	2	3	4.5
Peanuts shelled	16-18 nuts	10	2.5	2.5	4
Walnuts shelled	4-8 H	8	1	1.5	5

Other food constituents as well as fat should be considered in using these equivalents

TABLE 23
CALCIUM
AVERAGE SERVINGS OF VEGETABLES AND FRUITS ARRANGED
ACCORDING TO THEIR CONTENTS OF CALCIUM*

Vegetables

Above 0.050 gram	0.050 to 0.041 gram	0.040 to 0.031 gram	0.030 to 0.021 gram	0.020 to 0.004 gram
Beans string 0.065	Beans navy 0.044	Beans string (C) 0.037	Asparagus 0.021	Asparagus (C) 0.016
Beet greens 0.024	Cabbage 0.045	Onions 0.038	Beans lima dried 0.023	Corn 0.006
Broccoli 0.140	Carrots 0.043	Radishes 0.037	Beans lima 0.03	Corn (C) 0.007
Celery 0.073		Sauerkraut 0.039	Beets 0.024	Cucumber 0.006
Chard 0.100			Brussels sprouts 0.027	Eggplant 0.011
Dandelion greens 0.054			Cauliflower 0.025	Lettuce head 0.017
Endive 0.104			Peas dried 0.023	Mushroom 0.014
Lettuce leaf 0.059			Peas fresh 0.023	Peas (C) 0.014
Parsnips 0.060			Potato sweet 0.030	Pepper 0.012
			Pumpkin 0.023	Potato white 0.011
				Squash summer 0.018
				Squash winter 0.019
				Tomato 0.007

Fruits

Above 0.050 gram	0.050 to 0.041 gram	0.040 to 0.031 gram	0.030 to 0.021 gram	0.020 to 0.004 gram
	Figs 0.03	Gooseberries 0.035	Apricots dried 0.070	Apples 0.007
			Blueberries 0.073	Applesauce (C) 0.005
			Currants 0.06	Apricots (C) 0.009
			Grapefruit 0.021	Banana 0.008
			Lemon 0.077	Blackberries 0.017
			Orange 0.04	Cantaloup 0.018
			Raspberries 0.074	Cherries 0.017
			Strawberries 0.073	Cranberries 0.013
				Dates 0.022
				Peaches 0.010
				Peaches (C) 0.009
				Peaches dried 0.018
				Pears 0.015
				Pears (C) 0.009
				Pineapple 0.015
				Pineapple (C) 0.015
				Prunes 0.018
				Raisins 0.015
				Rhubarb 0.004
				Watermelon 0.007

* Table of Food Values and Measures (Table 13) for amounts of average servings

TABLE 29
CALCIUM EQUIVALENTS

Approximately 0.036 gram Various foods equivalent to 2 tablespoons of milk or $\frac{1}{2}$ cup

Grams	Food	Household Measure	Grams	Food	Household Measure
<i>Bread and Cereals</i>			<i>Meat</i>		
60	Bread, wh wheat	2 sl	360	Liver, beef	12 oz
150	Bread, rye light	5 sl	270	Meat, lean	9 oz
60	Bread, white	2 sl	360	Meat, med fat	12 oz
60	Oats, rolled, dry	$\frac{1}{2}$ c ($1\frac{1}{2}$ c ck)	180	Poultry, dark	6 oz
75	Shredded wheat	$2\frac{1}{2}$ b	270	Poultry light	9 oz
<i>Dairy Products</i>			<i>Miscellaneous</i>		
4	Cheese, American	$\frac{3}{4}$ t	15	Almonds	12-15 nuts
45	Cheese, cottage	3 T	30	Maple syrup	1 r T
10	Cheese, cream	2 t	15	Molasses	1 T no
45	Cream, heavy	3 T	60	Peanuts	66-70 nuts
38	Cream, light	$2\frac{1}{2}$ T	45	Walnuts	24-48 nuts
75	Egg	1 $\frac{1}{2}$	<i>Vegetables</i>		
15	Milk, evaporated	1 T	150	Asparagus	12 st
30	Milk, skim	2 T	45	Beans, lima dried	3 T
30	Milk, whole	2 T	50	Beans, string	$\frac{1}{2}$ c
<i>Fish</i>			75	Cabbage	$\frac{1}{2}$ c
210	Haddock	7 oz	65	Carrots	$\frac{3}{4}$ L
90	Herring smoked	$\frac{1}{2}$ fish	150	Cauliflower	$\frac{3}{4}$ c
360	Mackerel	12 oz	50	Celery	2 st
60	Oysters	4 m	38	Chard	3 T
60	Salmon (C)	$\frac{1}{2}$ c	33	Dandelion greens	3 T
270	Salmon fresh	9 oz	38	Endive	$\frac{1}{2}$ st
180	Shad	6 oz	200	Lettuce	$\frac{1}{2}$ hd
<i>Fruits</i>			100	Onions	2 m
45	Apricots, dried	9 H	50	Parsnips	$\frac{1}{2}$ c
150	Blueberries	1 c	100	Potato, sweet	1 sm
45	Currants, dried	3 T	300	Potato white	3 sm
45	Dates	5-6	50	Rutabaga	$\frac{1}{2}$ c
23	Figs	$1\frac{1}{2}$ sm	75	Turnips	6 T
100	Gooseberries	$\frac{3}{4}$ c	25	Watercress	$\frac{1}{2}$ bu
200	Grapes	40			
150	Grapefruit	$\frac{1}{2}$ m			
150	Lemon	$1\frac{1}{2}$ L			
150	Orange	$1\frac{1}{2}$ m			
150	Orange juice	$\frac{1}{2}$ c sc			
300	Peach	3 m			
250	Pears	$2\frac{1}{2}$ m			
165	Plums	5 av			
60	Prunes	6 m			
150	Raspberries	1 c			
900	Rhubarb	9 c			
150	Strawberries	15 L			

TABLE 30
CALCIUM

VARIOUS COMBINATIONS OF FOODS SUPPLYING A DAY'S REQUIREMENT

Daily Requirement Adult—0.8 gram Children (under 12)—1 gram

Adult				Child			
Grams	Food	Household Measure	Calcium Grams	Grams	Food	Household Measure	Calcium Grams
70	Milk	3 cups	0.849	960	Milk	4 cups	1.13
Total Calcium			0.849	Total Calcium			1.132
Total Phosphorus			0.669	Total Phosphorus			0.892
Total Iron			0.0013	Total Iron			0.002
450	Milk	3 cups	0.849	720	Milk	3 cups	0.849
100	Beans string	1 s d	0.065	100	Broccoli	1 s	0.140
120	Bread white enriched	4 sl	0.050	100	Potato	1 sm	0.011
100	Carrots	1 s d	0.045	Total Calcium			1.000
100	Orange	1 m	0.04	Total Phosphorus			0.794
200	Potato	1 L	0.022	Total Iron			0.004
Total Calcium			0.802	Total Calcium			0.868
Total Phosphorus			0.753	Total Calcium			0.065
Total Iron			0.002	Total Calcium			0.045
240	Milk	1 cup	0.83	100	Beans string	1 s d	0.140
200	Apple	1 L	0.014	90	Bread whole wheat	3 sl	0.07
100	Broccoli	1 s	0.140	100	Broccoli	1 s	0.077
240	Bread white enriched	6 sl	0.120	30	Molasses	2 T sc	0.016
100	Carrots	1 s d	0.045	190	Oats rolled ck	1 s d	0.049
100	Eggs	2	0.054	00	Oranges	2 m	0.011
30	Molasses	2 T sc	0.077	100	Potato	1 sm	0.00
190	Oats rolled ck	1 s d	0.016	Total Calcium			1.00
100	Orange	1 m	0.04	Total Phosphorus			1.054
200	Potato	1 L	0.022	Total Iron			0.0141
100	Tomato	1 m	0.007	Total Calcium			0.233
Total Calcium			0.802	Total Calcium			0.014
Total Phosphorus			1.049	Total Calcium			0.065
Total Iron			0.0016	Total Calcium			0.080
240	Milk	1 cup	0.253	100	Broccoli	1 s	0.140
100	Banana	1 sm	0.005	100	Carrots	1 s d	0.045
150	Bread whole wheat	5 sl	0.075	100	Eggs	2	0.054
100	Broccoli	1 s d	0.140	100	Kale	2 c	0.151
100	Eggs	2	0.054	60	Meat med fat	2 oz	0.008
100	Lettuce	1 bd	0.017	30	Molasses	2 T sc	0.077
120	Meat med fat	4 oz	0.012	200	Oranges	2 m	0.045
30	Molasses	2 T sc	0.077	Total Calcium			1.003
200	Oranges	2 m	0.045	Total Phosphorus			1.108
400	Potato	2 L	0.044	Total Iron			0.0193
80	Rais ns	2 T	0.018				
60	Shredded wheat	2 b	0.09				
Total Calcium			0.804				
Total Phosphorus			1.561				
Total Iron			0.035				

If only this amount of milk were used (and no cheese) it would be impossible for the child to eat the following amounts of foods (to obtain his requirements)

TABLE 31
PHOSPHORUS
AVERAGE SERVINGS IN VEGETABLES AND FRUITS ARRANGED ACCORDING TO THEIR CONTENT OF PHOSPHORUS*

Vegetables				
Above 030 gram	030 to 041 gram	040 to 031 gram	030 to 021 gram	020 to 011 gram
Beans lima dried 0 116	Beans string 0 044	Asparagus 0 040	Asparagus (C) 0 029	Cucumber 0 011
Beans navy 0 120	Beets 0 041	Beans string (C) 0 033	Pepper green 0 028	Sauerkraut 0 009
Broccoli 0 008	Cabbage Chinese 0 044	Beet greens 0 040	Squash winter 0 018	
Brussels sprouts 0 121	Carrots 0 041	Cabbage 0 034	Tomato 0 021	
Cauliflower 0 084	Celery 0 046	Dandelion greens 0 035		
Corn 0 103	Chard 0 050	Eggplant 0 031		
Corn (C) 0 100	Lettuce 0 040	Endive 0 039		
Paranip 0 076	Onions 0 044	Radishes 0 031		
Peas 0 127	Pumpkin 0 046	Turnip 0 032		
Peas (C) 0 070	Spinach 0 046			
Peas dried 0 122	Watercress 0 046			
Potato sweet 0 082				
Potato white 0 087				
Rutabaga 0 088				

Fruits				
Above 050 gram	050 to 041 gram	040 to 031 gram	030 to 021 gram	020 to 011 gram
	Currents dried 0 041	Apricots dried 0 036	Apricots 0 024	Apple 0 011
		Currents 0 038	Cherries 0 022	Blackberries 0 019
		Figs 0 035	Grapefruit 0 010	Blueberries 0 020
		Gooseberries 0 031	Grapes 0 021	Cantaloup 0 013
		Peaches dried 0 036	Plums 0 027	Cranberries 0 011
		Raspberries 0 030	Prunes 0 008	Dates 0 018
			Strawberries 0 023	Grapefruit (C) 0 020
			Raspberries 0 007	Grapefruit juice (C) 0 020
				Lemon 0 011
				Orange 0 018
				Peach 0 019
				Peaches (C) 0 013
				Pear 0 018
				Pears (C) 0 018
				Pineapple 0 011
				Rhubarb 0 018
				Watermelon 0 013

* Table of Food Values and Measures (Table 18) for amounts of average as given

TABLE 32
PHOSPHORUS EQUIVALENTS

Approximately 0.056 gram Various foods equivalent to 4 tablespoons of milk

Grams	Food	Household Measure	Grams	Food	Household Measure
<i>Bread and Cereals</i>			<i>Meats</i>		
38	Bread wh wheat	1½ sl	48	Bacon	8 sl full length
38	Bread, rye, light	1½ sl	15	Liver, beef or calves	½ oz
60	Bread, white	2 sl	30	Meat lean	1 oz, sc
12	Oats rolled, dry	1½ T	30	Meat med fat	1 oz
15	Ralston dry	1 T (½ c ck)	23	Poultry, dark or light	½ oz
10	Wheat, Cream of, dry	1 T (½ c ck)	<i>Nuts</i>		
15	Wheat shredded	½ b	12	Almonds	10-12 nuts
<i>Dairy Products</i>			300	Peanut butter	10 T
8	Cheese American	½ T	15	Pecans	10 H
20	Cheese cottage	4 t	15	Walnuts	8-16 nuts
90	Cream heavy	6 T	<i>Vegetables</i>		
75	Cream light	5 T	15	Beans lima dried	1 T
25	Egg whole	½	40	Beans lima fresh	3 T
9	Egg yolk	½	12	Beans navy	1 T
30	Milk, evaporated	2 T	125	Beans string	½ s d
60	Milk skim	4 T	50	Brussels sprouts	3 sm
60	Milk whole	4 T	125	Carrots	1½ L
<i>Fish</i>			100	Cauliflower	½ c
15	Cod	½ oz	80	Corn	½ m ear or 4 T
38	Flounder	1½ oz	150	Dandelion greens	½ c
30	Haddock	1 oz	60	Mushrooms	6 m
45	Oysters	3 m	66	Parsnips	½ c
23	Salmon fresh	½ oz	50	Peas	½ c
30	Shad	1 oz	50	Peas dried	1 T
<i>Fruits</i>			100	Potato sweet	1 sm
200	Banana	2 m	100	Potato white	1 sm
300	Blackberries	3 s d	125	Pumpkin	½ c
250	Cherries	63	125	Spinach	½ c
45	Currants	3 T	200	Turnips	1 c
45	Figs dried	3 sm			
2.0	Grapes	50			
45	Peaches dried	3 H			
500	Pineapple	5 sl ½" thick			
70	Prunes	7 m			
60	Raisins	4 T			
200	Raspberries red	1½ c			
2.0	Strawberries	25 L			

TABLE 33
PHOSPHORUSVARIOUS COMBINATIONS OF FOODS SUPPLYING A DAY'S REQUIREMENT
Daily Requirement Adult—1.32 grams Child (9 years)—1.5 grams

Adult				Child			
Grams	Food	Household Measure	Phosphorus Grams	Grams	Food	Household Measure	Phosphorus Grams
150	Bread whole wheat	5 sl	0.225	120	Bread whole wheat	4 sl	0.180
100	Eggs	2	0.224	100	Eggs	2	0.224
120	Meat med fat	4 oz	0.200	960	Milk	4 c	0.88
480	Milk	2 c	0.446	180	Oats rolled ck	1 sd	0.128
180	Oats rolled ck	1 sd	0.128	900	Potato	1 L	0.114
900	Potato	1 L	0.114				
Total Phosphorus			1.835	Total Phosphorus			1.835
Total Calcium			0.745	Total Calcium			1.284
Total Iron			0.0139	Total Iron			0.0113
200	Apple	1 L	0.074	100	Banana	1 sm	0.038
100	Beans string	1 sd	0.044	120	Bread whole wheat	4 sl	0.180
150	Bread whole wheat	5 sl	0.225	100	Carrots	1 sd	0.041
100	Carrots	1 sd	0.041	80	Egg	1	0.112
50	Egg	1	0.112	60	Meat med fat	2 oz	0.100
90	Meat med fat	3 oz	0.150	70	Milk	3 c	0.669
480	Milk	2 c	0.446	180	Oats rolled ck	1 sd	0.128
100	Orange	1 m	0.018	100	Orange	1 m	0.018
200	Potato	1 L	0.114	100	Pean	1 sd	0.197
30	Shredded wheat	1 b	0.125	200	Potato	1 L	0.114
100	Tomato	1 m	0.021				
Total Phosphorus			1.370	Total Phosphorus			1.815
Total Calcium			0.863	Total Calcium			1.080
Total Iron			0.015	Total Iron			0.0149
200	Apple	1 L	0.074	900	Apple	1 L	0.074
100	Banana	1 sm	0.028	100	Banana	1 sm	0.038
100	Beans string	1 sd	0.044	100	Beans string	1 sd	0.044
150	Bread whole wheat	5 sl	0.225	150	Bread whole wheat	5 sl	0.225
100	Broccoli	1 b	0.083	100	Carrots	1 sd	0.041
100	Carrots	1 sd	0.041	80	Egg	1	0.112
50	Egg	1	0.112	60	Meat med fat	2 oz	0.100
100	Lettuce	1 hd	0.040	720	Milk	3 c	0.669
90	Meat med fat	3 oz	0.150	900	Potato	1 L	0.114
480	Milk	2 c	0.446	30	Shredded wheat	1 b	0.125
100	Orange	1 m	0.018	100	Tomato	1 m	0.021
200	Potato	1 L	0.114				
100	Tomato	1 m	0.021	Total Phosphorus			1.803
Total Phosphorus			1.331	Total Calcium			1.13
Total Calcium			1.019	Total Iron			0.015
Total Iron			0.0185	150	Bread whole wheat	5 sl	0.225
100	Beans string	1 sd	0.044	100	Carrots	1 sd	0.041
150	Bread whole wheat	5 sl	0.225	60	Meat med fat	2 oz	0.100
50	Egg	1	0.112	960	Milk	4 c	0.88
720	Milk	3 c	0.669	100	Orange	1 m	0.018
180	Oats rolled ck	1 sd	0.128	100	Pean	1 sd	0.127
100	Pineapple	1 sl	0.011	200	Potato	1 L	0.114
200	Potato	1 L	0.114				
100	Tomato	1 m	0.021	Total Phosphorus			1.817
Total Phosphorus			1.32	Total Calcium			1.37
Total Calcium			1.077	Total Iron			0.0191
Total Iron			0.0124				

TABLE 31

IRON

AVERAGE SERVINGS OF VEGETABLES AND FRUITS ARRANGED
ACCORDING TO THEIR CONTENT OF IRON
Vegetables

Above 1.5 Milligrams		1.5-1.0 Milligrams		0.9-0.5 Milligram		0.4-0.0 Milligram	
Beans lima dried	2 2	Asparagus	1 0	Asparagus (C)	0 7	Cabbage	0 4
Beans lima, fresh	2 4	Beans string	1 4	Beans string (C)	0 7	Corn (C)	0 4
Beans navy	3 1	Broccoli	1 4	Beets	0 9	Cucumber	0 3
Beet greens	3 3	Brussels sprouts	1 2	Carrots	0 8	Lettuce	0 1
Chard	3 1	Cabbage Chinese	1 0	Cauliflower	0 9	Pepper	0 4
Dandelion greens	3 1	Endive	1 2	Celery	0 8	Sauerkraut	0 3
Peas dried	1 8	Potato sweet	1 0	Corn	0 8	Squash summer	0 4
Peas fresh	2 1	Potato white	1 3	Eggplant	0 3		
Espinach	2 8			Lettuce head	0 8		
Watercress	3 0			Mushrooms	0 7		
				Onions	0 3		
				Pumpkin	0 9		
				Radishes	0 8		
				Rutabaga	0 3		
				Squash winter	0 6		
				Tomato	0 6		
				Turnip	0 3		

Fruits

Above 1.5 Milligrams		1.5-1.0 Milligrams		0.9-0.5 Milligram		0.4-0.0 Milligram	
Apricots dried	2 3	Dates	1 0	Apricots	0 6	Apple	0 4
Peaches dried	1 8			Banana	0 6	Applesauce (C)	0 3
				Blackberries	0 9	Apricots (C)	0 4
				Blueberries	0 9	Grapefruit	0 3
				Cantaloup	0 7	Grapefruit (C)	0 3
				Cherries sweet	0 6	Orange	0 4
				Cranberries	0 6	Peach	0 3
				Currants	0 6	Peach (C)	0 2
				Figs	0 9	Pear	0 3
				Gooseberries	0 3	Pear (C)	0
				Grapes	0 7	Pineapple	0 3
				Lemons	0 6	Pineapple (C)	0 3
				Plums	0 3	Watermelon	0 2
				Prunes	0 9		
				Raisins	0 9		
				Raspberries	0 9		
				Strawberries	0 9		

CI Tables of Food Values and Measures (Table 15) for amounts of average servings

TABLE 35
IRON EQUIVALENTS
Approximately 15 milligrams Various foods equivalent to 1 egg

Grams	Food	Household Measure	Grams	Food	Household Measure
	<i>Bread and Cereals</i>			<i>Miscellaneous</i>	
75	Bread, wh wheat	2½ sl	45	Maple syrup	2 T
90	Bread, rye	3 sl	20	Molasses	1 T, m
150	Bread, white, enr	5 sl			
180	Oats, rolled	½ c		<i>Nuts</i>	
45	Wheat shredded	1½ b	40	Almonds	30-40 nuts
			80	Peanuts	88 nuts
			60	Pecans	48 H
			75	Walnuts	40-80 H
	<i>Dairy Products</i>			<i>Vegetables</i>	
18	Egg yolk	1	150	Asparagus	12 st
50	Egg	1	15	Beans lima, dried	1 T
720	Milk	3 c	60	Beans, lima, fresh	5 T
	<i>Fish</i>		100	Beans string	½ c
150	Flounder	5 oz	50	Beet greens	½ c
90	Herring smoked	½ sm fish	150	Beets	3 m
30	Oysters	2 m	100	Broccoli	½ c
120	Salmon (C)	1 c	120	Brussels sprouts	9 m
150	Salmon, fresh	5 oz	150	Cauliflower	½ c
	<i>Fruits</i>		50	Chard	½ c
20	Apricots dried	4 H	50	Dandelion greens	½ c
150	Blackberries	12 T	150	Lettuce, leaf	15 lvs
150	Blueberries	1 c	200	Parsnips	1 c
200	Currants	1 c	66	Peas	½ c
45	Dates	5-6 stoned	30	Peas dried	2 T
45	Figs	3	150	Potato, sweet	1½ sm
30	Peaches dried	2 H	100	Potato white	1 sm
500	Pears	5 m	150	Pumpkin	½ c
50	Prunes	6 m	60	Spinach	5 T
45	Raisins	3 T	50	Watercress	½ bunch
150	Raspberries red	1 hp c			
	<i>Meat</i>				
90	Bacon	15 strips			
75	Chicken	2½ oz			
20	Liver, beef	¾ oz			
45	Beef lean	1½ oz			
60	Beef, m fat	2 oz			

TABLE 36

IRON

VARIOUS COMBINATIONS OF FOODS SUPPLYING A DAY'S REQUIREMENTS
 Daily Requirement Adult—12 milligrams Child (9 years)—10 milligrams

Adult				Child			
Grams	Food	Household Measure	Iron Milligrams	Grams	Food	Household Measure	Iron Milligrams
150	Bread whole wheat	5 sl	3.0	30	Bread whole wheat	1 sl	0.6
50	Egg	1	1.5	50	Egg	1	1.5
400	Milk	2 c	1.0	720	Milk	3 c	1.8
180	Oats rolled ck	1 sd	1.5	180	Oats rolled ck	1 sd	1.5
200	Potato	1 L	2.5	200	Potato	1 L	2.5
100	Spinach	1 sd	3.5	100	Spinach	1 sd	2.5
Total Iron			12.1	Total Iron			10.2
Total Calcium			784.0	Total Calcium			1007.8
Total Phosphorus			1089.0	Total Phosphorus			1112.0
200	Apple	1 L	0.8	200	Apple	1 L	0.8
100	Banana	1 sm	0.6	100	Banana	1 sm	0.6
100	Beans string	1 sd	1.4	100	Beans string	1 sd	1.4
170	Bread white enr	4 sl	1.2	100	Carrots	1 sd	0.6
100	Carrots	1 sd	0.6	480	Milk	2 c	1.0
480	Milk	2 c	1.0	30	Molasses	2 T	2.8
100	Molasses	2 T	2.8	100	Orange	1 m	0.4
100	Orange	1 m	0.4	200	Potato	1 L	2.5
200	Potato	1 L	2.5	Total Iron			10.2
100	Tomato	1 m	0.6	Total Calcium			821.0
Total Iron			12.0	Total Phosphorus			724.0
Total Calcium			808.0	50	Bread whole wheat	3 sl	1.5
Total Phosphorus			865.0	100	Broccoli	1 s	1.4
150	Bread, whole wheat	5 sl	3.0	50	Meat med fat	2 os	1.4
100	Broccoli	1 s	1.4	70	Milk	3 c	1.5
120	Meat med fat	4 os	2.8	200	Potato	1 L	2.5
480	Milk	2 c	1.0	30	Prunes	3 m	0.9
200	Potato	1 L	2.5	30	Shredded wheat	1 b	1.0
30	Prunes	3 m	0.9	Total Iron			10.6
10	Shredded wheat	1 b	1.0	Total Calcium			1094.0
Total Iron			12.7	Total Phosphorus			1235.0
Total Calcium			847.0	100	Eggs	2	3.0
Total Phosphorus			1202.0	50	Meat lean	2 os	1.5
100	Eggs	2	3.0	480	Milk	2 c	1.0
120	Meat lean	4 os	3.6	180	Oats rolled ck	1 sd	1.5
480	Milk	2 c	1.0	100	Peas	1 sd	2.1
180	Oats rolled ck	1 sd	1.5	30	Raisins	2 T	0.9
100	Peas	1 sd	2.1	Total Iron			10.3
30	Raisins	2 T	0.9	Total Calcium			685.0
Total Iron			12.1	Total Phosphorus			1035.0
Total Calcium			693.0				
Total Phosphorus			1197.0				

TABLE 37

COPPER

Average Servings of Some Common Foods Arranged According to Their Content of Copper*

Grams	Food	Copper	Grams	Food	Copper
More than 300 Micrograms			90-10 Micrograms		
100	Corn <i>Cereals</i>	449	30	Bread, white	62
30	Oysters <i>Fish</i>	1087	30	Flour white	44
100	Avocado <i>Fruit</i>	71	30	Rice, white	55
30	Liver <i>Meat Poultry</i>	1036	240	Milk <i>Dairy Products</i>	84
100	Kale <i>Vegetables</i>	323	30	Haddock <i>Fish</i>	65
290-200 Micrograms			30	Halibut	48
30	Barley, entire <i>Cereals</i>	226	30	Mackerel	69
30	Oats	222	100	Apple <i>Fruit</i>	71
30	Rye, entire	197	100	Cantaloup	57
30	Wheat	236	100	Orange	76
100	Banana <i>Fruit</i>	200	100	Plums	80
30	Beans, dry <i>Vegetables</i>	287	30	Prunes, dried	88
30	Beans, lima dry	275	100	Strawberries	75
30	Peas dried	241	100	Lettuce, head <i>Vegetables</i>	69
100	Spinach	197	100	Turnip	85
190-100 Micrograms					
30	Flour, whole wheat <i>Cereals</i>	131			
50	Egg <i>Dairy Products</i>	127			
100	Grapes <i>Fruit</i>	98			
100	Pears	134			
100	Asparagus <i>Vegetables</i>	141			
100	Beans, string	126			
100	Beets	187			
100	Cabbage	99			
100	Carrots	111			
100	Lettuce loose leaf	145			
100	Onions	130			
100	Pepper, green	107			
100	Potato	164			
100	Sweet potato	184			
100	Tomato	97			

* Sherman, Chemistry of Food and Nutrition 6th ed, Macmillan Co, 1941

TABLE 38
MANGANESE

Average Servings of Some Common Foods Arranged According to Their Content of Manganese*

Grams	Food	Manga- nese	Grams	Food	Manga- nese
More than 400 Micrograms			190-100 Micrograms		
<i>Cereals</i>			<i>Fruits</i>		
30	Barley, entire	505	30	Prunes, dried	131
30	Flour, whole wheat	1234	<i>Meat</i>		
30	Oats	1434	30	Liver	103
30	Rye, entire	920	<i>Vegetables</i>		
30	Wheat	1378	100	Asparagus	190
<i>Fruit</i>			100	Cabbage	114
100	Banana	642	100	Pepper, green	126
<i>Vegetables</i>			100	Potato	173
30	Beans, dry	451	100	Tomato	189
30	Beans lima, dry	497	90-10 Micrograms		
100	Beets	577	<i>Bread</i>		
100	Corn	683	30	Bread white	93
100	Kale	537	<i>Dairy Products</i>		
100	Lettuce head	777	50	Egg	17
100	Lettuce loose leaf	1240	240	Milk	15
30	Peas dried	597	<i>Fish</i>		
100	Spinach	823	30	Haddock	11
100	Sweet potato	407	30	Halibut	3
300-300 Micrograms			30	Mackerel	11
<i>Cereals</i>			30	Oysters	80
30	Rice white	304	30	Honey	63
<i>Vegetables</i>			<i>Fruit</i>		
100	Beans string	326	100	Apple	84
100	Onions	363	100	Cantaloup	42
290-200 Micrograms			100	Grapes	83
<i>Cereals</i>			100	Orange	25
100	Flour white	214	100	Pears	64
<i>Fruit</i>			100	Plums	96
100	Avocado	291	<i>Vegetables</i>		
100	Strawberries	219	100	Turnip	83
<i>Vegetables</i>					
100	Carrots	247			

* Sherman Chemistry of Food and Nutrition, 6th ed., Macmillan Co., 1941

TABLE 39
POTASSIUM
AVERAGE SERVINGS OF SOME COMMON FOODS ARRANGED
ACCORDING TO THEIR CONTENT OF POTASSIUM*

Grams	Food	Potassium	Grams	Food	Potassium
More than 400 Micrograms			100-400 Micrograms		
100	<i>Fruit</i> Avocado	653	30	<i>Breads Cereals</i> Barley entire	146
30	<i>Vegetables</i> Beans lima dried	518	30	Bread whole wheat	155
100	Dandelion greens	461	30	Oatmeal	129
100	Parsnips	417	30	Rice whole	103
100	Potato, white	496	30	Wheat, entire	140
100	Spinach	489	30	<i>Fish</i> Cod fish	109
300-400 Micrograms			30	Halibut	107
100	<i>Fruit</i> Banana	373	30	Mackerel	125
100	Rhubarb	358	100	<i>Fruit</i> Apple	116
100	<i>Vegetables</i> Beets	336	100	Blackberries	131
100	Broccoli	335	100	Grapefruit	198
100	Carrots	311	100	Grape juice	139
100	Cauliflower	313	100	Lemon	148
100	Escarole	351	100	Orange	181
100	Kale	337	100	Pears	128
100	Lettuce	311	100	Raspberries	190
100	Mushrooms	384	100	Strawberries	145
100	Potato sweet	373	30	<i>Meat</i> Beef lean	10
100	Squash winter	330	30	Chicken	112
100	Tomato juice	310	30	Ham med lean	115
100	Turnip	327	30	Heart	111
100	Watercress	301	30	Veal	108
240	<i>Dairy Products</i> Milk	343	30	<i>Nuts</i> Brazil nuts	181
30	<i>Sweets</i> Molasses	371	30	Walnuts	158
200-300 Micrograms			30	<i>Sweets</i> Chocolate	183
100	<i>Fruit</i> Cantaloup	249	100	<i>Vegetables</i> Asparagus	187
100	Cherries	246	100	Cucumber	100
30	Dates	203	100	Onions	183
30	Figs	207	100	Squash summer	150
100	Grapes	254	Less than 100 Micrograms		
100	Peaches	256	30	<i>Flour Bread Cereal</i> Barley pearl	33
100	Pineapple	214	30	Bread white	33
100	Plums	232	30	Farina	36
20	Prunes	254	30	Flour buckwheat	30
30	Raisins	212	30	Flour whole wheat	97
100	<i>Vegetables</i> Beans string	251	30	Flour white	39
100	Cabbage	294	30	Macaroni	52
100	Celery	291	30	Rice white	4
100	Egg plant	279	15	<i>Dairy Products</i> Butter	2
100	Peas	264	30	Cheese hard	40
100	Tomato	268	30	Cream	39
30	<i>Nuts</i> Almonds	228	60	Egg	69
30			30	<i>Fish</i> Blue fish	95
			30	Clams	82
			30	Flounder	84
			30	Haddock	84
			30	Salmon	95
			100	<i>Fruit</i> Blueberries	65
			100	Cranberries	80
			30	<i>Meat</i> Bacon	72
			30	Lamb	91
			30	Pork med fat	91

TABLE 40
SODIUM CHLORIDE

AVERAGE SERVINGS* OF SOME COMMON FOODS ARRANGED ACCORDING TO THEIR CONTENT OF SODIUM CHLORIDE†

Grams	Food	Sodium Chloride	Gram	Food	Sodium Chloride
<i>Less Than 0.10 Gram</i>			<i>Less than 0.10 Gram</i>		
<i>Breads and Cereals</i>			<i>Vegetables—Continued</i>		
30	Bread, white, low salt	0.023	100	Eggplant	0.040
30	Cornmeal	0.027	100	Onions	0.034
8	Cracker, graham	0.075	100	Parsnips	0.050
6	Cracker, unseeded	0.077	100	Peas	0.040
30	Cream of wheat	0.037	100	Potato	0.060
7	Flour, white	0.008	100	Pumpkin	0.060
30	Macaroni	0.036	100	Squash	0.010
30	Matzoh	0.001	100	Turnip	0.070
30	Oat rolled	0.033	100	Tomato	0.060
30	Rice, white	0.027			
30	Shredded wheat	0.034	<i>More Than 0.10 Gram</i>		
<i>Dairy Products</i>			<i>Breads and Cereals</i>		
5	Butter, unsalted	0.001	30	Bread rye	0.507
30	Cheese, cottage	0.084	30	Bread white	0.130
80	Egg	0.090	30	Bread, whole wheat	0.300
24	Egg yolk	0.027			
18	Egg white	0.060	<i>Dairy Products</i>		
<i>Fruit</i>			5	Butter salted	0.510
100	Apple	0.008	240	Buttermilk	0.384
100	Applesauce	0.008	30	Cheese, American	0.246
100	Apricots fresh	0.003	30	Cheese cream	0.375
100	Blueberries	0.010	120	Cream, heavy	0.237
100	Cantaloup	0.067	120	Cream, medium	0.158
100	Cherries	0.020	240	Milk	0.432
30	Figs	0.017			
100	Grapefruit	0.008	<i>Fish</i>		
100	Grapes	0.010	90	Cod fresh	0.213
100	Lemon juice	0.005	90	Haddock	0.171
100	Peach	0.010	90	Halibut	0.198
100	Pear	0.020	90	Mackerel fresh	0.228
100	Pineapple	0.080	90	Salmon, canned	0.116
30	Raisins	0.040	90	Salmon, fresh	0.213
100	Raspberries	0.020	90	Shad	0.153
100	Rhubarb	0.059			
100	Strawberries	0.010	<i>Fruit</i>		
100	Watermelon	0.010	100	Banana	0.206
<i>Miscellaneous</i>			<i>Meat and Poultry</i>		
30	Almonds	0.024	30	Bacon	0.600
5	Cocoa	0.005	90	Chicken	0.144
100	Grape juice	0.003	90	Ham	3.6-4.5
30	Honey	0.014	90	Liver	0.146
15	Mayonnaise	0.064	90	Meat	0.152
30	Peanuts	0.030			
30	Walnuts	0.020	<i>Miscellaneous</i>		
<i>Vegetables</i>			100	Ice cream	0.168
100	Asparagus	0.060	130	Molasses	0.147
100	Brussels sprouts	0.070			
100	Beans lima fresh	0.004	<i>Vegetables</i>		
100	Beans string	0.040	100	Beets	0.100
100	Cabbage	0.040	100	Celery	0.260
100	Carrots	0.040	100	Dandelion greens	0.168
100	Cauliflower	0.060	100	Lettuce	0.120
100	Corn canned	0.026	100	Potato, sweet	0.160
			100	Spinach	0.120

† Table of Food Values and Measures (Table 15) for amounts of average servings
 * Pattee Alida *Dietetics*, 18th ed., A. F. Pattee Also Proudfoot Fairfax *Nutrition and Diet Therapy* 6th ed. Macmillan Co., 1934

TABLE 39
POTASSIUM
AVERAGE SERVINGS OF SOME COMMON FOODS ARRANGED
ACCORDING TO THEIR CONTENT OF POTASSIUM*

Grams	Food	Potassium	Grams	Food	Potassium
More than 400 Micrograms			100-400 Micrograms		
100	Avocado <i>Fruit</i>	653	30	Barley entire <i>Breads Cereals</i>	146
100	Beans lima dried <i>Vegetables</i>	518	30	Bread whole wheat	135
100	Dandelion greens	461	30	Oatmeal	129
100	Parsnips	417	30	Rice whole	103
100	Potato, white	496	30	Wheat entire	140
100	Spinach	489	30	Cod fish <i>Fish</i>	109
300-400 Micrograms			30	Halibut	102
100	Banana <i>Fruit</i>	373	30	Mackerel	125
100	Rhubarb	358	100	Apple <i>Fruit</i>	116
100	Beets <i>Vegetables</i>	336	100	Blackberries	181
100	Broccoli	395	100	Grapefruit	199
100	Carrots	311	100	Grape juice	139
100	Cauliflower	313	100	Lemon	143
100	Escarole	381	100	Orange	181
100	Kale	387	100	Pears	139
100	Lettuce	311	100	Raspberries	190
100	Mushrooms	354	100	Strawberries	145
100	Potato sweet	373	30	Beef lean <i>Meat</i>	102
100	Squash winter	320	30	Chicken	112
100	Tomato juice	310	30	Ham med lean	115
100	Turnip	327	30	Heart	111
100	Watercress	301	30	Veal	108
240	Milk <i>Dairy Products</i>	343	30	Brand nuts <i>Nuts</i>	181
30	Molasses <i>Sweets</i>	371	30	Walnuts	158
200-300 Micrograms			30	Chocolate <i>Sweets</i>	133
100	Cantaloup <i>Fruit</i>	249	100	Asparagus <i>Vegetables</i>	187
100	Cherries	246	100	Cucumber	100
30	Dates	253	100	Onions	183
30	Figs	297	100	Squash summer	150
100	Grapes	254	Less than 100 Micrograms		
100	Peaches	256	30	Barley pearl <i>Flour Bread Cereal</i>	33
100	Pineapple	214	30	Bread white	33
100	Plums	232	30	Farma	36
30	Prunes	254	30	Flour buckwheat	39
30	Raisins	212	30	Flour whole wheat	97
100	Beans string <i>Vegetables</i>	251	30	Flour white	39
100	Cabbage	234	30	Macaroni	62
100	Celery	231	30	Rice white	24
100	Egg plant	229	15	Butter <i>Dairy Products</i>	2
100	Fennel	234	30	Chowder hard	40
100	Tomato	238	30	Cream	39
30	Almonds <i>Nuts</i>	278	50	Egg	27
30			30	Blue fish <i>Fish</i>	85
30			30	Clams	81
30			30	Flounder	94
30			30	Haddock	95
30			30	Salmon	95
100			100	Blueberries <i>Fruit</i>	55
100			100	Cranberries	80
30			30	Bacon <i>Meat</i>	72
30			30	Lamb	91
30			30	Pork med fat	91

TABLE 40 SODIUM CHLORIDE

AVERAGE SERVINGS* OF SOME COMMON FOODS ARRANGED ACCORDING TO THEIR CONTENT OF SODIUM CHLORIDE†

Grams	Food	Sodium Chloride	Gram	Food	Sodium Chloride
<i>Less Than 0.10 Gram</i>			<i>Less than 0.10 Gram</i>		
<i>Breads and Cereals</i>			<i>Vegetables—Continued</i>		
30	Bread white, low salt	0.023	100	Eggplant	0.040
30	Cornmeal	0.027	100	Onions	0.034
8	Cracker, graham	0.075	100	Parsnips	0.040
6	Cracker, unseeded	0.077	100	Peas	0.040
30	Cream of wheat	0.037	100	Potato	0.060
7	Flour, white	0.008	100	Pumpkin	0.060
30	Macaroni	0.036	100	Squash	0.010
30	Matzoh	0.001	100	Turnip	0.070
30	Oat, rolled	0.033	100	Tomato	0.060
30	Rice white	0.027			
30	Shredded wheat	0.034	<i>More Than 0.10 Gram</i>		
<i>Dairy Products</i>			<i>Breads and Cereals</i>		
5	Butter, unsalted	0.001	30	Bread, rye	0.507
30	Cheese, cottage	0.084	30	Bread white	0.130
50	Egg	0.090	30	Bread whole wheat	0.300
24	Egg yolk	0.027			
18	Egg white	0.060	<i>Dairy Products</i>		
<i>Fruit</i>			5	Butter salted	0.510
100	Apple	0.008	240	Buttermilk	0.384
100	Applesauce	0.008	30	Cheese, American	0.246
100	Apricots fresh	0.003	30	Cheese cream	0.375
100	Blueberries	0.010	120	Cream, heavy	0.237
100	Cantaloup	0.067	120	Cream, medium	0.158
100	Cherries	0.020	240	Milk	0.432
30	Figs	0.017			
100	Grapefruit	0.008	<i>Fish</i>		
100	Grapes	0.010	90	Cod fresh	0.213
100	Lemon juice	0.005	90	Haddock	0.171
100	Peach	0.010	90	Halibut	0.198
100	Pear	0.020	90	Mackerel, fresh	0.228
100	Pineapple	0.080	90	Salmon, canned	0.116
30	Raisins	0.040	90	Salmon, fresh	0.213
100	Raspberries	0.020	90	Shad	0.183
100	Rhubarb	0.059			
100	Strawberries	0.010	<i>Fruit</i>		
100	Watermelon	0.010	100	Banana	0.206
<i>Miscellaneous</i>			<i>Meat and Poultry</i>		
30	Almonds	0.024	30	Bacon	0.600
5	Cocoa	0.005	90	Chicken	0.144
100	Grape juice	0.003	90	Ham	3.6-4.5
30	Honey	0.014	90	Liver	0.156
15	Mayonnaise	0.064	90	Meat	0.183
30	Peanuts	0.030			
30	Walnuts	0.020	<i>Miscellaneous</i>		
<i>Vegetables</i>			100	Ice cream	0.198
100	Asparagus	0.060	130	Molasses	0.157
100	Brussels sprouts	0.070			
100	Beans lima fresh	0.004	<i>Vegetables</i>		
100	Beans string	0.040	100	Beets	0.100
100	Cabbage	0.040	100	Celery	0.260
100	Carrots	0.040	100	Dandelion greens	0.168
100	Cauliflower	0.060	100	Lettuce	0.120
100	Corn canned	0.026	100	Potato, sweet	0.160
			100	Spinach	0.120

* Cf. Table of Food Values and Measures (Table 15) for amounts of average servings.
† Patten Alida, *Dietetics*, 18th ed., A. F. Patten. Also Proudfit Fairfax, *Nutrition and Diet Therapy*, 6th ed., Macmillan Co., 1934.

TABLE 41
VITAMIN A EQUIVALENTS

Approximately 1000 International Units Various foods equivalent to two eggs

Grams	Food	Household Measure
<i>Dairy Products</i>		
38	Butter*	2½ Tablespoons
63	Cheese American (cheddar)	2½ ounces
45	Cream heavy, 40%	3 Tablespoons or 5½ Tablespoons, whipped
90	Cream light, 20%	6 Tablespoons
100	Eggs	2 medium
200	Ice cream, commercial	1 cup
540	Milk whole	2½ cups
53	Oleomargarine fortified	3½ Tablespoons
<i>Meat</i>		
3	Liver, beef	½ ounce
4	Liver, calves	½ ounce
4	Liver, pork	½ ounce
<i>Fruits</i>		
13	Apricots, dried	2½ halves
100	Cantaloup	½
67	Nectarine	1½ medium
66	Peach, yellow	1 small or ½ medium
75	Prunes stoned	7½ medium
<i>Vegetables</i>		
7	Beet greens	½ Tablespoon
100	Beans, string	½ cup or 1 sauce dish
17	Broccoli, entire plant	1½ Tablespoon
17	Carrots	½ large
12	Chard Swiss	1 Tablespoon, scant
188	Corn sweet	2 small ears or ½ cup
10	Dandelion greens	1 Tablespoon, scant
7	Escarole	½ leaf small
20	Lettuce green leaf	2 leaves
100	Peas fresh	½ cup or 1 sauce dish
135	Pars green dried	9 Tablespoons
33	Pepper green	½ large
100	Potato sweet	½ small
50	Pumpkin	4 Tablespoons or ½ cup
6	Spinach	½ Tablespoon, scant
35	Squash winter	2 Tablespoons scant
100	Tomato fresh	1 medium
50	Watercress	½ small bunch

* The vitamin A content of butter varies according to the season or the type of feed for the animals

TABLE 42
THIAMINE EQUIVALENTS
 Approximately 75 micrograms Various foods equivalent to 1 egg

Grams	Food	Household Measure
<i>Dairy Products</i>		
330	Cheese, American (cheddar)	11 ounces
240	Cream heavy 40%	1 cup
240	Cream light, 20%	1 cup
50	Egg	1
160	Milk, whole	$\frac{1}{2}$ cup
<i>Meat</i>		
50	Beef lean	1 $\frac{1}{2}$ ounces
30	Brain average	1 ounce
30	Heart average	1 ounce
30	Kidney average	1 ounce
30	Lamb medium fat	1 ounce
20	Liver beef	1 ounce
20	Liver pork	1 ounce
6	Pork lean	1 ounce
53	Poultry dark	1 $\frac{1}{2}$ ounces
53	Poultry, light	2 $\frac{1}{2}$ ounces
30	Veal lean	1 ounce
<i>Fish</i>		
90	Flounder	3 ounces
90	Halibut	3 ounces
60	Mackerel	2 ounces
23	Oysters	1 $\frac{1}{2}$
100	Salmon, canned	1 cup scant
<i>Fruits</i>		
200	Apple	2 small or 1 large
150	Banana	1 $\frac{1}{2}$ medium
100	Grapefruit	1 medium
66	Orange	medium or $\frac{1}{2}$ cup juice
100	Pineapple juice canned	cup scant
66	Plums	2
40	Prunes stoned	4 medium
<i>Vegetables</i>		
46	Asparagus fresh	3 $\frac{1}{2}$ stalks
100	Beans green string fresh	$\frac{1}{2}$ cup or 1 sauce dish
26	Beans lima, fresh	2 tablespoons
7	Beans soy dried	1 $\frac{1}{2}$ teaspoons
90	Broccoli entire plant	cup scant
75	Carrots	large
75	Corn canned	3 tablespoons
40	Eale	11 tablespoons
100	Lettuce head	$\frac{1}{2}$ head
15	Peas dried	1 tablespoon
20	Peas fresh	1 $\frac{1}{2}$ tablespoons
50	Potato sweet	$\frac{1}{2}$ small
75	Potato white	$\frac{1}{2}$ small
78	Spinach	11 tablespoons
100	Tomato	1 medium
<i>Breads</i>		
24	Bread cracked wheat	$\frac{1}{2}$ slice
60	Bread rye light	2 slices
36	Bread, white enriched, min	1 $\frac{1}{2}$ slices
24	Bread, whole wheat	$\frac{1}{2}$ slice
<i>Cereals</i>		
15	Cream of wheat enriched dry	1 $\frac{1}{2}$ tablespoon or $\frac{1}{4}$ cup cooked
10	Oats rolled dry	1 $\frac{1}{2}$ tablespoons or $\frac{1}{4}$ cup cooked
30	Shredded wheat	1 biscuit
<i>Nuts</i>		
15	Brazil	2
15	Peanuts roasted	15
15	Peanut butter	1 tablespoon
15	Pecans shelled	12 halves
18	Walnuts	9 halves

RIBOFLAVIN EQUIVALENTS

Approximately 125 micrograms Various foods equivalent to 1 egg

Grams	Food	Household Measure
<i>Dairy Products</i>		
20	Cheese, American (cheddar)	4 teaspoons
90	Cream, heavy, 40%	6 tablespoons
75	Cream, light, 20%	5 tablespoons
50	Egg, whole	1
38	Milk, evaporated	2½ tablespoons
60	Milk, whole	4 tablespoons or ½ cup
<i>Meat</i>		
60	Beef, medium fat	2 ounces
50	Brain, average	1½ ounces
15	Heart, average	½ ounce
11	Kidney, average	½ ounce
51	Lamb, medium fat	1½ ounces
4	Liver, beef	½ ounce
4	Liver, calves	½ ounce
60	Pork, medium fat	2 ounces
60	Poultry, dark	3 ounces
<i>Fish</i>		
60	Haddock	2 ounces
240	Mackerel	8 ounces
60	Salmon	2 ounces
<i>Fruits</i>		
150	Banana	1½ medium
200	Cantaloup	½
200	Grapefruit	1 medium
250	Orange	2½ medium
85	Prunes stoned	3½ medium
105	Raisins	7 tablespoons
<i>Vegetables</i>		
130	Asparagus	10 stalks
100	Beans, green string, fresh	½ cup or 1 sauce dish
105	Beans, lima, fresh	5 tablespoons
15	Beans soy dried	1 tablespoon
20	Beet greens	1½ tablespoons
126	Cabbage partly green	1 cup scant
133	Carrots	1½ large
78	Cauliflower	6 tablespoons
200	Corn, yellow	2 medium ears
50	Dandelion greens	½ cup
50	Endive	1 leaf
50	Escarole	2 leaves
52	Kale	4 tablespoons
80	Lettuce, green leaf	8 leaves
65	Peas fresh	5 tablespoons
45	Peas dried green	3 tablespoons
300	Potato white	3 small
34	Spinach	2½ tablespoons
300	Tomato	3 medium
50	Watercress	½ small bunch
<i>Breads</i>		
90	Bread, cracked wheat	3 slices
360	Bread, rye light	12 slices
75	Bread white enriched min	2½ slices
75	Bread, whole wheat	2½ slices
<i>Cereals</i>		
60	Oats rolled dry	½ cup or 1½ cups cooked
75	Shredded wheat	2½ biscuits
<i>Nuts</i>		
100	Peanuts	100
90	Peanut butter	6 tablespoons
36	Pecans shelled	30 halves

TABLE 44
NIACIN EQUIVALENTS
 Approximately 600 micrograms Various foods equivalent to $\frac{1}{2}$ oz beef

Grams	Food	Household Measure
<i>Dairy Products</i>		
300	Cheese, American (cheddar)	10 ounces
1000	Eggs whole	20
720	Milk, whole	3 cups
<i>Meat</i>		
8	Beef medium fat	$\frac{1}{2}$ ounce
10	Brain average	$\frac{1}{2}$ ounce
10	Heart average	$\frac{1}{2}$ ounce
15	Kidney average	$\frac{1}{2}$ ounce
8	Lamb, medium fat	$\frac{1}{2}$ ounce
4	Liver beef	$\frac{1}{2}$ ounce
8	Pork medium fat	$\frac{1}{2}$ ounce
8	Poultry, light	$\frac{1}{2}$ ounce
<i>Fish</i>		
15	Flounder	$\frac{1}{2}$ ounce
10	Halibut	$\frac{1}{2}$ ounce
10	Salmon, fresh or canned	$\frac{1}{2}$ ounce
<i>Fruits</i>		
50	Cranberries	$\frac{1}{2}$ cup
300	Grapefruit, fresh	1 $\frac{1}{2}$ medium
300	Orange	3 medium
66	Peach, yellow fresh	$\frac{3}{4}$ medium
120	Apple	1 medium
100	Banana	1 medium
30	Dates dried	3-4
105	Raisins seeded	7 tablespoons
<i>Vegetables</i>		
120	Asparagus fresh	9 stalks
15	Beans soy, dried	1 tablespoon
200	Cabbage partly green	1 $\frac{1}{2}$ cups
120	Lettuce head	$\frac{1}{2}$ head
85	Spinach	$\frac{1}{2}$ cup, scant
100	Tomato fresh	1 medium
100	Beans green string fresh	$\frac{1}{2}$ cup
45	Carrots	$\frac{1}{2}$ medium
50	Peas, fresh	$\frac{1}{2}$ cup
50	Beans lima dried	2 tablespoons
50	Potato white	$\frac{1}{2}$ small
<i>Breads</i>		
68	Bread, white enriched min	2 $\frac{1}{2}$ slices
30	Bread whole wheat	1 slice
35	Ry crisp	5
<i>Cereals</i>		
60	Cornflakes	3 cups
150	Macaroni dry	1 $\frac{1}{2}$ cups
15	Maltex dry	1 tablespoon
45	Oats rolled dry	$\frac{1}{2}$ cup
15	Shredded wheat	$\frac{1}{2}$ biscuit
<i>Nuts</i>		
30	Almonds, shelled	24-30 nuts
4	Peanut butter	$\frac{1}{2}$ teaspoon

TABLE 45
ASCORBIC ACID EQUIVALENTS

Approximately 54 milligrams Various foods equivalent to one orange

Grams	Food	Household Measure
<i>Fruits</i>		
900	Apple	1 small
500	Banana	5 medium
200	Cantaloup	$\frac{1}{2}$
66	Grapefruit, fresh	$\frac{1}{2}$
134	Grapefruit juice, canned	$\frac{1}{2}$ cup, scant
134	Lemon juice	$\frac{1}{2}$ cup, scant
100	Orange	1 medium
100	Orange juice	$\frac{1}{2}$ cup scant
700	Peach, yellow	7 medium
300	Pineapple, fresh	3 slices $\frac{1}{2}$ "
800	Pineapple juice, canned	4 cups, scant
140	Strawberries	14 large
200	Tangerine	4 small
<i>Vegetables raw</i>		
75	Cabbage, partly green	$\frac{1}{2}$ cup
400	Lettuce, head	1 head
50	Pepper green	$\frac{1}{2}$ large
500	Potato, white	1 small
100	Spinach	$\frac{1}{2}$ cup
250	Tomato, fresh	2 $\frac{1}{2}$ medium
250	Tomato juice	1 $\frac{1}{2}$ cups
100	Watercress	1 small bunch

TABLE 46
ACID ASH FORMING FOODS

Average Servings of Some Common Foods Arranged according to Their Excess of Acid Ash**

Grams	Food	Household Measure	Excess Acid by in cubic centimeters Normal Acid—HCl
<i>Bread</i>			
30	Bread, graham	1 cl	2 0
30	Bread, rye	1 sl	2 0
30	Bread, white	1 sl	2 1
30	Bread, wh wheat	1 sl	2 2
<i>Cereals</i>			
30	Barley	3 T	3 12
30	Cornflakes	1 c	1 6
30	Farina	3 T	2 9
30	Oatmeal, dry	5 T	3 6
30	Macaroni	4 T	2 9
30	Rice, brown	2 T	2 8
30	Rice, polished	3 T	2 8
10	Rice, puffed	$\frac{1}{2}$ c	0 9
30	Shredded wheat	1 b	3 6
30	Spaghetti	4 T	2 9
10	Wheat, puffed	$\frac{1}{2}$ c	1 1
30	Whole wheat	3 T	3 6
<i>Crackers</i>			
8	Graham	1	1 0
4	Saltines	1	0 3
6	Soda crackers	1	0 5
<i>Dairy Products</i>			
30	Cheese, cheddar	1 p (1"x1 $\frac{1}{2}$ "x1")	1 62
35	Egg white	1 white	1 7
60	Egg whole	1	5 5
15	Egg yolk	1 yolk	3 75
<i>Fish</i>			
30	Codfish (salt)	1 oz	3 8
90	Haddock	3 oz (3"x2 $\frac{1}{2}$ "x1")	7 7
90	Halibut	3 oz	8 37
90	Herring smoked	3 oz	9 0
90	Mackerel	3 o	8 4
30	Oysters	2 m	4 53
90	Salmon (C)	3 oz	11 63
90	Salmon, fresh	3 oz	9 9
30	Sardines	4 gm	3 39
30	Smelts	1 oz or 2 fishes	2 6

TABLE 46—*Concluded*

Grams	Food	Household Measure	Excess Acidity in cubic cen- timeters Normal Acid— HCl
	<i>Flour</i>		
8	Flour, white	1 T	0 8
	<i>Fruits</i>		
100	Cranberries	$\frac{1}{3}$ c	*
100	Plums	3 ($1\frac{1}{2}$ " d)	*
50	Prunes	5 sm	*
	<i>Meats</i>		
15	Bacon	2 thick or 3 thin strips	1 5
90	Beef	3 oz	9 0
90	Chicken	3 oz	9 63
90	Ham, boiled	3 sl	9 0
90	Ham, m fat	3 sl ($4\frac{1}{2}$ " \times $4\frac{1}{2}$ " \times $1\frac{1}{2}$ ")	6 7
90	Ham, smoked, lean	3 sl ($4\frac{1}{2}$ " \times $4\frac{1}{2}$ " \times $1\frac{1}{2}$ ")	8 7
90	Ham smoked, m	3 sl ($4\frac{1}{2}$ " \times $4\frac{1}{2}$ " \times $1\frac{1}{2}$ ")	7 5
	Lamb	—	—
90	Liver	($2\frac{1}{2}$ " \times $2\frac{1}{2}$ " \times $1\frac{1}{2}$ ")	9 0
90	Pork, lean	$\frac{1}{2}$ " thick	9 0
90	Pork, m fat	1 chop ($\frac{1}{2}$ " thick)	7 5
90	Veal	3 oz	9 8
	<i>Miscellaneous</i>		
23	Cake, plain	$1\frac{1}{4}$ " cu	1 2
24	Cookies sugar	2	1 0
45	Doughnuts	1	3 3
15	Mayonnaise	1 T	0 21
15	Peanut butter	1 sc T	0 7
30	Peanuts	33-35 nuts	1 2
30	Walnuts, English	8-16	2 2
	<i>Vegetables</i>		
100	Corn, sweet	4 T	1 8
100	Lentils	$\frac{1}{2}$ c, ck	5 1

* These fruits "give rise to hippuric acid which remains unburned, so that they increase rather than decrease the acidity of the urine"—Sherman, Henry C, *Chemistry of Food and Nutrition* p 278 Macmillan Co 1932

** Waller, *Nutritive Value of Foods* George Wahr Ann Arbor, and Stern and Spitz, *Food for the Worker*, M Barrows

TABLE 47
ALKALINE ASH FORMING FOODS

Average Servings of Some Common Foods Arranged according to Their Excess of Alkaline Ash*

Grams	Food	Household Measure	Excess Alkalinity in cubic centimeters Normal Alkal — NaOH
<i>Dairy Products</i>			
240	Buttermilk	1 c	5.3
30	Cream, m	2 T	0.2
30	Cream, heavy	2 T	0.12
30	Milk, evaporated	2 T	1.38
240	Milk, whole	1 c	5.5
240	Milk, skim	1 c	4.3
<i>Fruits</i>			
<i>Fresh—5 per cent</i>			
100	Cantaloup	$\frac{1}{2}$ melon	7.5
100	Muskmelon	$\frac{1}{2}$ melon	7.5
100	Rhubarb	1 c	8.5
<i>Fresh—10 per cent</i>			
100	Grapefruit	$\frac{1}{2}$	5.6
100	Lemon juice	7 T	4.0
100	Orange	1 m	5.6
100	Orange juice	$\frac{1}{2}$ c sc	4.5
100	Peach	1 m	5.0
100	Watermelon	$\frac{1}{2}$ thin sl	2.7
<i>Fresh—15 per cent</i>			
100	Apple	1 sm	3.7
100	Apricots	2 (1 $\frac{1}{2}$ d)	6.8
100	Grapes	1 sm bunch	2.7
100	Pear	1 m	3.7
100	Pineapple	1 sl ($\frac{1}{2}$ " thick)	6.8
<i>Fresh—20 per cent</i>			
100	Banana	1 sm	3.6
100	Cherries	2 $\frac{1}{2}$ sm (sour)	6.1
<i>Dried—over 20 per cent</i>			
30	Currants	$\frac{1}{2}$ c	1.7
30	Dates	3—4 stoned	3.3
30	Raisins	$\frac{1}{2}$ c seeded	7.1
<i>Miscellaneous</i>			
100	Applesauce	$\frac{1}{2}$ c	4.5
30	Cocoanut	1 oz	2.1
100	Grape juice	$\frac{1}{2}$ c sc	3.9
100	Ice cream, vanilla	2 hp T	0.5
30	Marmalade orange	1 r T	0.1
23	Molasses	1 T	13.7
13 $\frac{1}{2}$	Pie apple	$\frac{1}{2}$ pie (9" d)	2.2

TABLE 47—*Concluded*

Grams	Food	Household Measure	Excess Alkalinity in cubic centimeters Normal Alkali—NaOH
	<i>Nuts</i>		
10	Almonds	10 nuts	1 23
	<i>Vegetables</i>		
	<i>Fresh—5 per cent</i>		
100	Asparagus	8 st	0 80
100	Beans, string (C)	1 s	2 7
100	Beet greens	1 s	27 0
100	Cabbage	1 s	6 0
100	Cauliflower	1 s	5 3
100	Celery	4 st	7 8
100	Cucumber	1 sm	7 9
100	Endive	1 s	7 4
100	Lettuce	½ head or 16 lvs	7 4
100	Radishes	10	2 9
100	Sauerkraut	1 s	5 7
100	Spinach	1 s	27 0
100	Tomatoes	1 m	5 6
	<i>Fresh—10 per cent</i>		
100	Beans, string	1 s	5 4
100	Beets	1 s	10 9
100	Brussels sprouts	1 s	6 0
100	Carrots	1 s	10 9
100	Mushrooms	4 L	4 0
100	Onions	1 b	1 5
100	Pumpkin	1 s	1 5
100	Squash, Hubbard	1 s	8
100	Turnip	1 s	2 7
	<i>Fresh—15 per cent</i>		
100	Parsnips	1 s	12 0
100	Peas	1 s	1 2
	<i>Over 20 per cent</i>		
100	Beans, baked	1 s	6 4
100	Beans lima (C)	1 s	9 2
100	Beans lima, fresh	1 s	14 0
30	Peas dried (C)	3 T	1 5
100	Potato, sweet	1 sm	6 7
100	Potato, white	1 sm	7 1

* Waller, *Nutritive Value of Foods* George Wahr, Ann Arbor and Stern and Spitz, *Food for the Worker* M. Barrows

TABLE 49

AVERAGE SERVINGS OF SOME COMMON FOODS ARRANGED FOR COMPARISON OF THEIR EXCESS OF ACID ASH OR EXCESS OF ALKALINE ASH IN TERMS OF NORMAL SOLUTION

Excess of Acid or Alkaline Ash	More than 10 grams	9.9 to 9.0 grams	8.9 to 8.0 grams	7.9 to 7.0 grams	6.9 to 6.0 grams	5.9 to 5.0 grams	4.9 to 4.0 grams	3.9 to 3.0 grams	2.9 to 2.0 grams	1.9 to 1.0 gram	Less than 1.0 gram
Acid Ash Forming Foods	Meat, Fish and Poultry										
	Cod salt	11.3	Beef, lean	Chicken	Beef fat	Ham fresh	Cod fresh	Bacon			
	Ham fresh	10.8	Foal	Halibut	Ham smoked	Ham fat	Egg whole	Sardines (C)			
	Herring	10.2	Lean beef	Ham smoked	Mutton m			Miscellaneous			
	Oysters	13.3	Lean m	Lamb	Pork m	Egg yolk	Walnuts,	Cheese			
			Lean m	Liver calf	fat		English	dried			
				Butter	Smalls			Corn			
				Veal m fat				Sweet			
								Egg			
								white			
Alkaline Ash Forming Foods	Beans, l ma	12.4	Beans lima	Carrots (C)	Celery	Beans baked	Mushrooms	Beans string	Dandelion	Apparagus	Apparagus
	fresh	27.0	(C)	l ma	Cucumber	(C)		Pepper	Onions	Apparagus	Apparagus
	Beet greens	27.0		l ma	Lettuce	Potato sweet		Radishes	Pas	(C)	(C)
	Beets	10.9		l ma	Potato white			Squash	Pas	(C)	(C)
	Carrots	10.9		l ma				Squash	Pas	(C)	(C)
	Celery	13.6		l ma				Pumpkin			
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
Alkaline Ash Forming Foods	Beans, l ma	12.4	Beans lima	Carrots (C)	Celery	Beans baked	Mushrooms	Beans string	Dandelion	Apparagus	Apparagus
	fresh	27.0	(C)	l ma	Cucumber	(C)		Pepper	Onions	Apparagus	Apparagus
	Beet greens	27.0		l ma	Lettuce	Potato sweet		Radishes	Pas	(C)	(C)
	Beets	10.9		l ma	Potato white			Squash	Pas	(C)	(C)
	Carrots	10.9		l ma				Squash	Pas	(C)	(C)
	Celery	13.6		l ma				Pumpkin			
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
Alkaline Ash Forming Foods	Beans, l ma	12.4	Beans lima	Carrots (C)	Celery	Beans baked	Mushrooms	Beans string	Dandelion	Apparagus	Apparagus
	fresh	27.0	(C)	l ma	Cucumber	(C)		Pepper	Onions	Apparagus	Apparagus
	Beet greens	27.0		l ma	Lettuce	Potato sweet		Radishes	Pas	(C)	(C)
	Beets	10.9		l ma	Potato white			Squash	Pas	(C)	(C)
	Carrots	10.9		l ma				Squash	Pas	(C)	(C)
	Celery	13.6		l ma				Pumpkin			
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
Alkaline Ash Forming Foods	Beans, l ma	12.4	Beans lima	Carrots (C)	Celery	Beans baked	Mushrooms	Beans string	Dandelion	Apparagus	Apparagus
	fresh	27.0	(C)	l ma	Cucumber	(C)		Pepper	Onions	Apparagus	Apparagus
	Beet greens	27.0		l ma	Lettuce	Potato sweet		Radishes	Pas	(C)	(C)
	Beets	10.9		l ma	Potato white			Squash	Pas	(C)	(C)
	Carrots	10.9		l ma				Squash	Pas	(C)	(C)
	Celery	13.6		l ma				Pumpkin			
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
Alkaline Ash Forming Foods	Beans, l ma	12.4	Beans lima	Carrots (C)	Celery	Beans baked	Mushrooms	Beans string	Dandelion	Apparagus	Apparagus
	fresh	27.0	(C)	l ma	Cucumber	(C)		Pepper	Onions	Apparagus	Apparagus
	Beet greens	27.0		l ma	Lettuce	Potato sweet		Radishes	Pas	(C)	(C)
	Beets	10.9		l ma	Potato white			Squash	Pas	(C)	(C)
	Carrots	10.9		l ma				Squash	Pas	(C)	(C)
	Celery	13.6		l ma				Pumpkin			
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
Alkaline Ash Forming Foods	Beans, l ma	12.4	Beans lima	Carrots (C)	Celery	Beans baked	Mushrooms	Beans string	Dandelion	Apparagus	Apparagus
	fresh	27.0	(C)	l ma	Cucumber	(C)		Pepper	Onions	Apparagus	Apparagus
	Beet greens	27.0		l ma	Lettuce	Potato sweet		Radishes	Pas	(C)	(C)
	Beets	10.9		l ma	Potato white			Squash	Pas	(C)	(C)
	Carrots	10.9		l ma				Squash	Pas	(C)	(C)
	Celery	13.6		l ma				Pumpkin			
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
Alkaline Ash Forming Foods	Beans, l ma	12.4	Beans lima	Carrots (C)	Celery	Beans baked	Mushrooms	Beans string	Dandelion	Apparagus	Apparagus
	fresh	27.0	(C)	l ma	Cucumber	(C)		Pepper	Onions	Apparagus	Apparagus
	Beet greens	27.0		l ma	Lettuce	Potato sweet		Radishes	Pas	(C)	(C)
	Beets	10.9		l ma	Potato white			Squash	Pas	(C)	(C)
	Carrots	10.9		l ma				Squash	Pas	(C)	(C)
	Celery	13.6		l ma				Pumpkin			
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
Alkaline Ash Forming Foods	Beans, l ma	12.4	Beans lima	Carrots (C)	Celery	Beans baked	Mushrooms	Beans string	Dandelion	Apparagus	Apparagus
	fresh	27.0	(C)	l ma	Cucumber	(C)		Pepper	Onions	Apparagus	Apparagus
	Beet greens	27.0		l ma	Lettuce	Potato sweet		Radishes	Pas	(C)	(C)
	Beets	10.9		l ma	Potato white			Squash	Pas	(C)	(C)
	Carrots	10.9		l ma				Squash	Pas	(C)	(C)
	Celery	13.6		l ma				Pumpkin			
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
Alkaline Ash Forming Foods	Beans, l ma	12.4	Beans lima	Carrots (C)	Celery	Beans baked	Mushrooms	Beans string	Dandelion	Apparagus	Apparagus
	fresh	27.0	(C)	l ma	Cucumber	(C)		Pepper	Onions	Apparagus	Apparagus
	Beet greens	27.0		l ma	Lettuce	Potato sweet		Radishes	Pas	(C)	(C)
	Beets	10.9		l ma	Potato white			Squash	Pas	(C)	(C)
	Carrots	10.9		l ma				Squash	Pas	(C)	(C)
	Celery	13.6		l ma				Pumpkin			
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
Alkaline Ash Forming Foods	Beans, l ma	12.4	Beans lima	Carrots (C)	Celery	Beans baked	Mushrooms	Beans string	Dandelion	Apparagus	Apparagus
	fresh	27.0	(C)	l ma	Cucumber	(C)		Pepper	Onions	Apparagus	Apparagus
	Beet greens	27.0		l ma	Lettuce	Potato sweet		Radishes	Pas	(C)	(C)
	Beets	10.9		l ma	Potato white			Squash	Pas	(C)	(C)
	Carrots	10.9		l ma				Squash	Pas	(C)	(C)
	Celery	13.6		l ma				Pumpkin			
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
Alkaline Ash Forming Foods	Beans, l ma	12.4	Beans lima	Carrots (C)	Celery	Beans baked	Mushrooms	Beans string	Dandelion	Apparagus	Apparagus
	fresh	27.0	(C)	l ma	Cucumber	(C)		Pepper	Onions	Apparagus	Apparagus
	Beet greens	27.0		l ma	Lettuce	Potato sweet		Radishes	Pas	(C)	(C)
	Beets	10.9		l ma	Potato white			Squash	Pas	(C)	(C)
	Carrots	10.9		l ma				Squash	Pas	(C)	(C)
	Celery	13.6		l ma				Pumpkin			
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
Alkaline Ash Forming Foods	Beans, l ma	12.4	Beans lima	Carrots (C)	Celery	Beans baked	Mushrooms	Beans string	Dandelion	Apparagus	Apparagus
	fresh	27.0	(C)	l ma	Cucumber	(C)		Pepper	Onions	Apparagus	Apparagus
	Beet greens	27.0		l ma	Lettuce	Potato sweet		Radishes	Pas	(C)	(C)
	Beets	10.9		l ma	Potato white			Squash	Pas	(C)	(C)
	Carrots	10.9		l ma				Squash	Pas	(C)	(C)
	Celery	13.6		l ma				Pumpkin			
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
Alkaline Ash Forming Foods	Beans, l ma	12.4	Beans lima	Carrots (C)	Celery	Beans baked	Mushrooms	Beans string	Dandelion	Apparagus	Apparagus
	fresh	27.0	(C)	l ma	Cucumber	(C)		Pepper	Onions	Apparagus	Apparagus
	Beet greens	27.0		l ma	Lettuce	Potato sweet		Radishes	Pas	(C)	(C)
	Beets	10.9		l ma	Potato white			Squash	Pas	(C)	(C)
	Carrots	10.9		l ma				Squash	Pas	(C)	(C)
	Celery	13.6		l ma				Pumpkin			
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
Alkaline Ash Forming Foods	Beans, l ma	12.4	Beans lima	Carrots (C)	Celery	Beans baked	Mushrooms	Beans string	Dandelion	Apparagus	Apparagus
	fresh	27.0	(C)	l ma	Cucumber	(C)		Pepper	Onions	Apparagus	Apparagus
	Beet greens	27.0		l ma	Lettuce	Potato sweet		Radishes	Pas	(C)	(C)
	Beets	10.9		l ma	Potato white			Squash	Pas	(C)	(C)
	Carrots	10.9		l ma				Squash	Pas	(C)	(C)
	Celery	13.6		l ma				Pumpkin			
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
Alkaline Ash Forming Foods	Beans, l ma	12.4	Beans lima	Carrots (C)	Celery	Beans baked	Mushrooms	Beans string	Dandelion	Apparagus	Apparagus
	fresh	27.0	(C)	l ma	Cucumber	(C)		Pepper	Onions	Apparagus	Apparagus
	Beet greens	27.0		l ma	Lettuce	Potato sweet		Radishes	Pas	(C)	(C)
	Beets	10.9		l ma	Potato white			Squash	Pas	(C)	(C)
	Carrots	10.9		l ma				Squash	Pas	(C)	(C)
	Celery	13.6		l ma				Pumpkin			
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
Alkaline Ash Forming Foods	Beans, l ma	12.4	Beans lima	Carrots (C)	Celery	Beans baked	Mushrooms	Beans string	Dandelion	Apparagus	Apparagus
	fresh	27.0	(C)	l ma	Cucumber	(C)		Pepper	Onions	Apparagus	Apparagus
	Beet greens	27.0		l ma	Lettuce	Potato sweet		Radishes	Pas	(C)	(C)
	Beets	10.9		l ma	Potato white			Squash	Pas	(C)	(C)
	Carrots	10.9		l ma				Squash	Pas	(C)	(C)
	Celery	13.6		l ma				Pumpkin			
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
	Carrots	13.6		l ma							
Alkaline Ash Forming Foods	Beans, l ma	12.4	Beans lima	Carrots (C)	Celery	Beans baked	Mushrooms	Beans string	Dandelion	Apparagus	Apparagus
	fresh	27.0	(C)	l ma	Cucumber	(C)		Pepper	Onions	Apparagus	Apparagus
	Beet greens	27.0		l ma	Lettuce	Potato sweet		Radishes	Pas	(C)	(C)
	Beets	10.9		l ma	Potato white			Squash	Pas	(C)	(C)
	Carrots	10.9									

TABLE 48—*Concluded*

Food	Neutral Foods		Average Savings		Average Savings	
	Butter Cornstarch Ginger ale Lard	Oil Sugar Tapioca	20 grams 50 grams 25 grams 100 grams 50 grams	Milk Meat fish or poultry Nuts Vegetables fresh Vegetables dried (legumes)	240 grams 90 grams 30 grams 100 grams 90 grams	
Bread						
Cereals dry						
Cheese						
Fruits fresh						
Fruits dried						

TABLE 49
PURIN BEARING FOOD
AVERAGE SERVINGS* OF SOME COMMON FOODS ARRANGED ACCORDING TO
THEIR CONTENT OF URIC ACID†

Over 15 gram	15 to 101 gram	10 to 651 gram	649 to 61 gram	Less than 61 gram	Purin Free
<i>Beverages‡</i>					
			Beer 0 0220	Coffee (1 T) 0 0030 Tea (1 t) 0 0004	
<i>Bread and Crackers</i>					
					White
<i>Cereals (Refined)</i>					
					Barley Hominy Rice Sago Tapioca Wheat
<i>Dairy Products</i>					
			Cheese dairy 0 0193	Cheese cream 0 0045	Butter Cheese Edam Limburger Roquesfort Swiss Cream Eggs Milk
<i>Fish</i>					
Trout 0 1812	Anchovies 0 1395	Crab 0 0540	Salmon 0 0439		Fish Roe (Caviar)
Herring 0 1863	Carp 0 1458	Herring red 0 0756	smoked		
	Codfish 0 1076	Lobster 0 0394			
	Pike 0 1 15	Oysters 0 0783			
	Sardines 0 1076	Salmon, fresh 0 0645			
<i>Meat</i>					
Kidney 0 2160	Liverwurst 0 1076	Beef 0 0999			
Liver 0 2511	Tongue 0 1485	Brains 0 0756			
Squab 0 1566	smoked 0 1485	Chicken 0 0783			
Sweetbread 0 8910	Veal 0 11 6	Goose 0 0999			
		Ham boiled 0 0673			
		smoked 0 0645			
		Mutton 0 0704			
		Pheasant 0 0918			
		Pork 0 1007			
<i>Nuts</i>					
					All except peanuts
<i>Vegetables</i>					
		Beans 0 0510	Asparagus 0 0740	Beans string 0 0090	All except those included in previous lists
		Mushrooms 0 0540	Beans shell 0 0743	Cabbage 0 0090	
		Peas dried 0 0540	Cauliflower 0 0740	Carlic—trace	
		Spinach 0 0720	Lentils 0 0436	Lettuce 0 0090	
			Radishes 0 0150	Potato white 0 0060	

* Table of Food Values and Measures (Table 15) for amounts of average servings

† Based on the table of J. Schmidt and G. Beason taken from J. Brueghel, *Gicht in Kraus und Brueghel's Specials Pathologie und Therapie der inneren Krankheiten*, Berlin, p. 23

‡ Harrop, George A. Jr. M.D. *Diet in Disease*. P. Blakiston's Son & Co. Inc. Philadelphia

APPLIED DIETETICS

TABLE 50
 AVERAGE SERVINGS OF VARIOUS FOODS ARRANGED ACCORDING TO THEIR CONTENT OF
 CHOLESTEROL (ANIMAL SOURCES)

Grams	Food	Household Measure	More than 1 gram	0.99 to 0.50 gram	0.49 to 0.10 gram	0.09 to 0.01 gram	Less than 0.01 gram
30	Bacon	6 thin sl					
15	Bacon, fat	1 T					
90	Beef, fresh	$3\frac{1}{2}'' \times 2\frac{1}{2}'' \times \frac{1}{2}''$					
30	Blood, beef	2 T					
30	Brains, cattle	1 oz				0.023	
15	Butter	1 T				0.02	
30	Cheese cream	2 r T				0.07	
90	Chicken	$3\frac{1}{2}'' \times 2\frac{1}{2}'' \times \frac{1}{2}''$	1 11			0.06	
18	Egg yolk	1				0.03	
30	Fats, lard, suet	2 T				0.03	
90	Kidney, mutton	$\frac{1}{2}$ c, chopped		0.47			
90	Kidney	$\frac{1}{2}$ c, chopped		0.39.			
90	Liver	$3\frac{1}{2}'' \times 2\frac{1}{2}'' \times \frac{1}{2}''$	3 06	0.11			
90	Liver, goose	$\frac{1}{2}$ c, chopped					
30	Meat, chicken	$3\frac{1}{2}'' \times 2\frac{1}{2}'' \times \frac{1}{2}''$	3 06		0.22.		
2-0	Milk, cows	$\frac{1}{2}$ c, chopped			0.44		
30	Milk, cows'	2 T			0.10		
30	Mu cle, dried beef	1 c					0.04
90	Pancreas, calf	1 oz					
90	Pork	1 oz					
30	Rabbit, whole	$3\frac{1}{2}'' \times 2\frac{1}{2}'' \times \frac{1}{2}''$	0 94		0.072		
30	Roe, Salmon	$\frac{1}{2}$ c, chopped			0.07		
30	Thymus, calf	1 oz			0.04		
90	Veal	1 oz					
		$3\frac{1}{2}'' \times 2\frac{1}{2}'' \times \frac{1}{2}''$	0 66 0 69	0 105		0 08	

Adapted from the table by John Russell Twiss, M.D., J A M A, Vol 101 No 24, p
 341, December 9 1933

TABLE 51

CHOLESTEROL

AVERAGE SERVINGS OF VARIOUS FOODS ARRANGED ACCORDING TO THEIR CONTENT OF CHOLESTEROL

(Vegetable Sources)

Grams	Food	Household Measure	49 to 10 gram	99 to 01 gram	Less than 01 gram
30	Almonds	21-30 nuts		0 016	
100	Apples	1 sm			0 007
100	Apricots	3 m			0 003
100	Artichokes, French	4 sm hes ts		0 016	
100	Asparagus	8 st		0 010	
100	Bananas	1 sm			0 008
30	Beans, flageolets, dry	3 T			0 001
100	Beans, green, fresh	$\frac{1}{2}$ c		0 018	
30	Beans kidney, dry	3 T		0 011	
100	Beets	2 m			0 0005
30	Bread, white	1 sl			0 004
100	Carrots	1 L or $\frac{1}{2}$ c			0 001
100	Cauliflower	6 r T		0 023	
100	Celery	4 st			0 0005
50	Chestnuts fresh	8		0 097	
30	Chocolate	1 sq		0 017	
3	Cocoa	1 t			0 0001
100	Corn sweet	$\frac{1}{2}$ c or 1 m ear	0 10		
30	Cornmeal	3 T			0 006
100	Eggplant	$\frac{1}{2}$ c			0 002
100	Endive, French	2 st			0 006
100	Figs black fresh	4 L		0 010	
142	Flour wheat	1 c		0 035	
100	Grapes white	24			0 006
100	Leeks	$\frac{1}{2}$ c			0 0009
30	Lentils, dry	2 $\frac{1}{2}$ T		0 012	
100	Lettuce	$\frac{1}{2}$ head			0 002
15	Margarine, nut	1 T			0 006
100	Melons			0 017	
100	Mushrooms, cooked	$\frac{1}{2}$ c			0 002
100	Olive, black	10 L		0 018	
15	Olive oil	1 T		0 018	
100	Oranges	1 m		0 014	
100	Peaches	1 m			0 006
115	Peanut oil	$\frac{1}{2}$ c		0 095	
100	Pears	1 sm		0 014	
30	Peas, dry	2 T		0 018	
100	Potatoes	1 sm			0 003
50	Prunes, dry	5 m		0 012	
30	Rice, white	10 T or $\frac{1}{2}$ c			0 008
100	Sauerkraut	$\frac{1}{2}$ c			0 001
25	Sorrel	$\frac{1}{2}$ c			0 002
100	Spinach	4 r T			0 006
100	Squash	$\frac{1}{2}$ c			0 003
100	Strawberries	10 L			0 009
100	Tomatoes	1 m			0 0004

Adapted from table by Milton A. Bridges *Food and Beverage Analyses* p 21, Lea and Febiger 1935

NORMAL RANGE FOR CERTAIN PHYSIOLOGICAL DATA

Blood	
Hemoglobin	12-15 grams per 100 cc
Children	14-18 grams per 100 cc
Adults Male	12-16 grams per 100 cc
Female	4,000 000-4,500 000 per c mm
Red cell count	4 500 000-5 400 000 per c mm
Children	4 000,000-4,800,000 per c mm
Adults Male	7,000-15 000 per c mm
Female	6,000-12 000 per c mm
White cell count	19-40 mgm per 100 cc
Children	25-40 mgm per 100 cc
Adults	0 5-3 5 mgm per 100 cc
Non protein nitrogen	2 0-3 5 mgm per 100 cc
Children	8-20 mgm per 100 cc
Adults	10-15 mgm per 100 cc
Uric acid	450-500 mgm per 100 cc
Children	80-120 mgm per 100 cc
Adults	150-240 mgm per 100 cc
Urea	9-11 mgm per 100 cc
Children	less than 10 mgm %
Adults	up to 10 mm in 1 hour
Sodium chloride	up to 15 mm in 1 hour
Sugar	1-2 mgm per 100 cc
Cholesterol	3-7 mgm
Calcium	3-4 5 mgm
Bilirubin	5-12 Bodansky units
Sedimentation rate (Westergren method)	1 5-4 Bodansky units
Male	less than 4 King Armstrong units
Female	1 5 mgm per 100 cc
Creatinine	0 8-2 4 mgm per 100 cc
Phosphorus	4 6-6 7%
Children	1 2-2 3%
Adults	5 8-9 0%
Alkaline phosphatase	1000-2000 cc in 24 hours
Children	1010-1032
Adults	Amber
Acid phosphatase	Acid to litmus
Ascorbic acid	0-trace
Children	0-trace
Adults	0
Albumin	0
Globulin	None to a rare red cell
Total protein	None to an occasional white cell
Urine	More in females
Volume	25% in 15 minutes,
Specific gravity	40-60% in one hour (intravenous)
Color	0 4-0 5% hydrochloric acid
Reaction	
Sugar	
Albumin	
Diabetic acid	
Sediment	
Casts	
Red blood corpuscles	
White blood corpuscles	
Squamous cells	
Acetone	
Phenolsulphonphthalein excretion	
Gastric acidity	
Blood pressure	
Children	
Adults	
Basal Metabolic Rate	

90-110
60-70
100-150
70-90
Minus 15—plus 10

TABLE 53

BIOLOGIC FOOD GROUPS* USED IN THE TREATMENT OF FOOD ALLERGY

GRAMINEAE Wheat Rice Rye Oat Barley Corn Sorghum	PONACEAE Apple Pear	ACERACEAE Maple Sugar
PALMACEAE Cocoanut Date	DRUPACEAE Almond Plum Prune Cherry Apricot Peach	STERCULIACEAE Cocoa
LILIACEAE Onion English Garlic Asparagus Leek Chive	LEGUMINOSAE Pea Kidney Bean Lima Bean Lentil Peanut Navy Bean String Bean	THEACEAE Tea
MORACEAE Black Mulberry Fig Hops	RUTACEAE Lemon Orange Grapefruit Tangerine	RUBIACEAE Coffee
POLYGONACEAE Buckwheat Rhubarb	MALVACEAE Cottonseed Okra, Gumbo	MUSACEAE Banana
JUGLANDACEAE Black Walnut English Walnut Pecan Hickory Butternut	UMBELLIFERAE Carrot Farsnip Parsley Celery Dill	VITACEAE Grape Raisin
BETULACEAE Hazelnut Filbert Chestnut	VACCINIACEAE Huckleberry Cranberry Blueberry	ANACARDIACEAE Pistachio Nut
CHENOPODIACEAE Spinach Beet Swiss Chard	SOLANACEAE Potato Tomato Eggplant Green Pepper Red Pepper Ground Cherry	OLEACEAE Olive
GROSSULARIACEAE Currant Gooseberry	CUCURBITACEAE Pumpkin Squash Cantaloup Cucumber Watermelon Muskmelon	CONVOLVULACEAE Sweet Potato Yam
CARICIFERAE Radish Horse Radish Mustard Turnip Rutabago Cabbage Kale Brussels Sprouts Kohl rabi Cauliflower Broccoli	COMPOSITAE (Chichoriaceae) Salsify Oyster Plant Chicory Lettuce Endive	BROMELIACEAE Pineapple
ROSACEAE Blackberry Strawberry Raspberry	COMPOSITAE (Asteraceae) Jerusalem Artichoke Artichoke	ZINGIBERACEAE Ginger
		UAGULATAE Beef Lamb Mutton Pork Veal
		AVES Chicken Duck Goose Squab Turkey
		PISCES Bass Crappie Pike Whitefish Herring Halibut Haddock Salmon
		CRUSTACEAE Lobster Crab Shrimp Crayfish
		MOLLUSCA Clam Oyster Scallop Abalone

*Adapted from an arrangement by M. Murray Peshkun, M.D. New York N. Y.

ELIMINATION DIETS FOR THE DIAGNOSIS AND TREATMENT OF ALLERGIC REACTIONS

[illegible]

TABLE 53

THE AMOUNTS OF CARBOHYDRATE, PROTEIN, FAT AND CALORIES FOR THE VARIOUS GRAM RATIOS OF THE KETOGENIC DIET

Diet Calculation Table

Calo	Gram Ratios							
	1 1	15 1	2 1	25 1	3 1	35 1	4 1	
	F C P	F C P	F C P	F C P	F C P	F C P	F C P	
1000	77 77	88 87	91 45	94 38	97 37	99 28	100 5	
	79 79	89 89	93 47	97 39	101 40	104 30	107 26	
	81 81	90 90	96 49	101 41	104 35	108 30	109 25	
	83 83	91 91	100 50	106 42	109 36	112 28	113 25	
1100	85 85	92 92	102 51	108 43	111 37	114 28	115 25	
	87 87	94 94	105 5	111 44	114 38	118 29	119 26	
	89 89	96 96	109 35	115 45	118 39	121 34	122 30	
	91 91	98 98	111 56	118 46	121 40	124 35	125 31	
1200	93 93	100 100	114 57	121 47	123 41	126 36	127 32	
	95 95	102 102	116 58	123 48	125 42	128 37	129 33	
	97 97	104 104	118 59	125 49	127 43	130 38	131 34	
	99 99	106 106	120 60	127 50	129 44	132 39	133 35	
1300	101 101	108 108	122 61	129 51	131 45	134 40	135 36	
	103 103	110 110	124 62	132 52	133 46	136 41	137 37	
	105 105	112 112	126 63	134 53	135 47	138 42	139 38	
	107 107	114 114	128 64	136 54	137 48	140 43	141 39	
1400	109 109	116 116	130 65	138 55	139 49	141 44	142 40	
	111 111	118 118	132 66	141 56	142 50	143 45	144 41	
	113 113	120 120	134 67	143 57	144 51	145 46	146 42	
	115 115	122 122	136 68	145 58	146 52	147 47	148 43	
1500	117 117	124 124	138 69	147 59	148 53	149 48	150 44	
	119 119	126 126	140 70	149 60	150 54	151 49	152 45	
	121 121	128 128	142 71	151 61	152 55	153 50	154 46	
	123 123	130 130	144 72	153 62	154 56	155 51	156 47	
1600	125 125	132 132	146 73	155 63	156 57	157 52	158 48	
	127 127	134 134	148 74	157 64	158 58	159 53	160 49	
	129 129	136 136	150 75	159 65	160 59	161 54	162 50	
	131 131	138 138	152 76	161 66	162 60	163 55	164 51	
1700	133 133	140 140	154 77	163 67	164 61	165 56	166 52	
	135 135	142 142	156 78	165 68	166 62	167 57	168 53	
	137 137	144 144	158 79	167 69	168 63	169 58	170 54	
	139 139	146 146	160 80	169 70	170 64	171 59	172 55	
1800	141 141	148 148	162 81	171 71	172 65	173 60	174 56	
	143 143	150 150	164 82	173 72	174 66	175 61	176 57	
	145 145	152 152	166 83	175 73	176 67	177 62	178 58	
	147 147	154 154	168 84	177 74	178 68	179 63	180 59	
1900	149 149	156 156	170 85	179 75	180 69	181 64	182 60	
	151 151	158 158	172 86	181 76	182 70	183 65	184 61	
	153 153	160 160	174 87	183 77	184 71	185 66	186 62	
	155 155	162 162	176 88	185 78	186 72	187 67	188 63	
2000	157 157	164 164	178 89	187 79	188 73	189 68	190 64	
	159 159	166 166	180 90	189 80	190 74	191 69	192 65	
	161 161	168 168	182 91	191 81	192 75	193 70	194 66	
	163 163	170 170	184 92	193 82	194 76	195 71	196 67	
2100	165 165	172 172	186 93	195 83	196 77	197 72	198 68	
	167 167	174 174	188 94	197 84	198 78	199 73	200 69	
	169 169	176 176	190 95	199 85	200 79	201 74	202 70	
	171 171	178 178	192 96	201 86	202 80	203 75	204 71	
2200	173 173	180 180	194 97	203 87	204 81	205 76	206 72	
	175 175	182 182	196 98	205 88	206 82	207 77	208 73	
	177 177	184 184	198 99	207 89	208 83	209 78	210 74	
	179 179	186 186	200 100	209 90	210 84	211 79	212 75	
2300	181 181	188 188	202 101	211 91	212 85	213 80	214 76	
	183 183	190 190	204 102	213 92	214 86	215 81	216 77	
	185 185	192 192	206 103	215 93	216 87	217 82	218 78	
	187 187	194 194	208 104	217 94	218 88	219 83	220 79	
2400	189 189	196 196	210 105	219 95	220 89	221 84	222 80	
	191 191	198 198	212 106	221 96	222 90	223 85	224 81	
	193 193	200 200	214 107	223 97	224 91	225 86	226 82	
	195 195	202 202	216 108	225 98	226 92	227 87	228 83	
2500	197 197	204 204	218 109	227 99	228 93	229 88	230 84	
	199 199	206 206	220 110	229 100	230 94	231 89	232 85	
	201 201	208 208	222 111	231 101	232 95	233 90	234 86	
	203 203	210 210	224 112	233 102	234 96	235 91	236 87	
2600	205 205	212 212	226 113	235 103	236 97	237 92	238 88	
	207 207	214 214	228 114	237 104	238 98	239 93	240 89	
	209 209	216 216	230 115	239 105	240 99	241 94	242 90	
	211 211	218 218	232 116	241 106	242 100	243 95	244 91	
2700	213 213	220 220	234 117	243 107	244 101	245 96	246 92	
	215 215	222 222	236 118	245 108	246 102	247 97	248 93	
	217 217	224 224	238 119	247 109	248 103	249 98	250 94	
	219 219	226 226	240 120	249 110	250 104	251 99	252 95	
2800	221 221	228 228	242 121	251 111	252 105	253 100	254 96	
	223 223	230 230	244 122	253 112	254 106	255 101	256 97	
	225 225	232 232	246 123	255 113	256 107	257 102	258 98	
	227 227	234 234	248 124	257 114	258 108	259 103	260 99	
2900	229 229	236 236	250 125	259 115	260 109	261 104	262 100	
	231 231	238 238	252 126	261 116	262 110	263 105	264 101	
	233 233	240 240	254 127	263 117	264 111	265 106	266 102	
	235 235	242 242	256 128	265 118	266 112	267 107	268 103	
3000	237 237	244 244	258 129	267 119	268 113	269 108	270 104	
	239 239	246 246	260 130	269 120	270 114	271 109	272 105	
	241 241	248 248	262 131	271 121	272 115	273 110	274 106	
	243 243	250 250	264 132	273 122	274 116	275 111	276 107	
3100	245 245	252 252	266 133	275 123	276 117	277 112	278 108	
	247 247	254 254	268 134	277 124	278 118	279 113	280 109	
	249 249	256 256	270 135	279 125	280 119	281 114	282 110	
	251 251	258 258	272 136	281 126	282 120	283 115	284 111	
3200	253 253	260 260	274 137	283 127	284 121	285 116	286 112	
	255 255	262 262	276 138	285 128	286 122	287 117	288 113	
	257 257	264 264	278 139	287 129	288 123	289 118	290 114	
	259 259	266 266	280 140	289 130	290 124	291 119	292 115	
3300	261 261	268 268	282 141	291 131	292 125	293 120	294 116	
	263 263	270 270	284 142	293 132	294 126	295 121	296 117	
	265 265	272 272	286 143	295 133	296 127	297 122	298 118	
	267 267	274 274	288 144	297 134	298 128	299 123	300 119	

E. H. Luth and W. M. Britton, M. D., University of California, Los Angeles
 These tables are for use in the diet calculation. The protein is based on the total protein requirement of 1.0 g. per kg. of body weight. The number of calories required is based on the total energy requirement of 3000 kcal. per day. The number of grams of carbohydrate, protein, and fat are given in the column marked "F C P". The remainder represents the amount of each body component which would be required to give the desired ratio.

APPLIED DIETETICS

TABLE 56
FOOD CONTENT OF DIETS MODIFIED ACCORDING TO CONSISTENCY†

Restricted Liquid	Full Liquid	Soft	Light
Beef juice	All foods on restricted liquid diet—plus	All foods on full liquid diet—plus	All foods on soft diet—plus
Broth—fat free	Cereal gruels	Bread—white	Breads
Cereal water	Cream	Milk toast	Cakes, plain
Coffee (no milk or cream)	Egg beverages	Toasted	Cereals
Fruit ices	Egg lemonade	Butter	Cheese
Fruit juices (bland)	Eggnog	Cake	American
Ginger ale and other carbonated beverages	Gelatin desserts (clear)	Angel	Cream
Kaffee Hag	Ice cream—no fruit or nuts	Sponge	Cookies, plain
Postum	Junket	Cereals, cooked	Cream
Sanka	Milk	Refined	Eggs—any way except fried
Tea	Milk beverages	Whole grain	*Fish
Toast water	Chocolate	Finely ground	Minced, baked or steamed
Vegetable juices—strained	Cocoa	Strained	Fruits
Water	Malted milk	Cheese, cottage	Mayonnaise
	Milkshakes	Crackers, white	Meats (except beef, mutton, pork and veal)
	Sherbets	Eggs, soft cooked	Bacon
	Soft custards	Fruits (free from skin and seed)	Brains
	Soups—strained	Pulp,	*Chicken (tender) minced, stewed, roasted
	Cream	Grapefruit	Lamb chops
	Vegetable	Orange	Poultry
		Soft cooked (baked or canned, as)	*Scraped beef
		Apples	*Sweet breads
		Apricots	Olives
		Bananas	*Oysters
		Peaches	Soups
		Pears	Vegetables (cooked and raw)
		Prunes	Except the cabbage family, corn, dried beans, cucumbers, onions, radishes and turnips
		Fruit jellies	
		Fruit whips	
		Jellies	
		Macaroni	
		Noodles	
		Potato—baked	
		cream, mashed	
		Puddings (no nuts or raisins)	
		Bread	
		Cornstarch	
		Custard	
		Tapiooca	
		Rice	
		Spaghetti	
		Vegetables, puréed,	
		Asparagus	
		Beans, string	
		Carrots	
		Peas	
		Spinach	
		Squash	
		Tomatoes	

* Permitted by some physicians on the soft diet
† Adapted from a committee report of the Diet Therapy Section of the A. D. A., 1930-32

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TABLE 57

FIGURES FOR THE CONSTRUCTION OF NORMAL AND DIABETIC DIETS FOR ADULTS

	Grams per Kilo Body Wt per day			Total Grams Average Weight 70 Kilos			Calories (Moderate activity)	
	C	P	F	C	P	F	Total	Per Kilo Body Wt per day
NORMAL DIET	4-6	1-1.5	1-2	280-420	70-105	70-140	2800-3150	40-45
	Grams per Kilo Body Wt per day			Total Grams Average weight 70 Kilos			Calories	
	C	P	F	C	P	F	Total	Per Kilo Body Wt per day
DIABETIC DIETS								
Overweight	1 4-2 1	1 0-1 2	0 5-1 0	100-150	70-85	35-70	1000-1600	14-22
Average weight	2 1-2 8	1 2-1 5	1 0-1 6	150-200	85-105	70-110	1600-2200	22-31
Underweight	2 8-3 6	1 5-1 5	1 6-2 1	200-250	105-105	110-150	2200-2800	31-40

The amount of the food constituents may be modified within the range of the figures given to meet the needs of the patient—such as various grades of activity and associated diseases or abnormal conditions

When insulin is not used the amounts of carbohydrate may be lowered and the amounts of fat increased to obtain the same caloric value

* As a general rule no less than 100 grams of carbohydrate are prescribed in these diets

** As a general rule no less than 1000 calories are prescribed in these diets

Amounts of minerals and vitamins are the same as for the normal diet unless there are other requirements for associated diseases or abnormal conditions. If sufficient amounts of minerals and vitamins are not supplied by food medication should be prescribed

Total calories are given in rounded numbers. To estimate total calories multiply the grams of carbohydrate and the grams of protein by 4 and the grams of fat by 9 and total the results

Diet for Children. For normal growth and development children require a normal diet with sufficient insulin to utilize it but concentrated carbohydrates are excluded

NOTES FOR DIETS

PART III

DIETARY OUTLINES

FOREWORD

In the following part, a chart and a series of dietary outlines present in a brief and comprehensive form the principles that have been discussed in the text, so that the complete dietetic treatment for a disease can be seen without referring to the text.

The chart states for each disease the body part affected, its normal function, the pathological physiology or abnormal condition present, and other considerations that enter into effective treatment. It restates the normal requirements of the food constituents, as given in the text. Also it indicates for each therapeutic diet whether the requirements, with respect to food constituents, calories and consistency of foods, remain normal (N) or need to be increased (+) or decreased (-). For example, in reading down the column for protein under the heading "Per kilogram of body weight," it will be seen that only in certain kidney and liver disorders is a change indicated from the normal protein. Again, looking down the columns for the minerals, calcium, phosphorus, and iron, it will be seen that the requirements remain normal (N) except for some diseases in which the skeletal structure is affected or for the needs of the fetus. In reading across the page it will be seen that for many diseases there is no modification from the normal requirement of any of the food constituents.

This is the value of the table—that to one who knows the normal requirements of the food constituents, and has an understanding of a particular disease or

abnormal condition, a glance will show what modification of the normal diet, if any, is necessary in the case of a particular dysfunction of a body part.

The dietary outlines that follow are constructed in conformity with the plan of the table, carrying the same headings and statements under each disease, but developing in greater detail the dietetic treatment that is indicated in the table.

The description of the diseases concerned in these outlines presents only certain fundamental facts that are pertinent to dietetic treatment, so that the principles underlying diet therapy will stand forth clearly in relation to medical findings and treatment. No attempt has been made to give complete medical data. This will already have been acquired or will need to be secured from other sources.

Each dietary outline includes a brief review of the environmental factors that influence the effectiveness of the diet, and suggestions relative to the education of the patient. For a more detailed discussion, reference may be made to the text (Chapters 4, 5, 6).

When the diagnosis is established the physician will consider the aid to be obtained from diet therapy. Seldom, however, is there but one disease to be treated. The food prescription must often consider an associated condition, sometimes more than one. A dietary planned to help to compensate for only one condition may be harmful to another and may need adjustment to meet the requirements of various diseases. In view of such a possibility there have been listed, alpha

FOOD CONSTITUENTS NEEDED PER DAY FOR THE NORMAL DIET AND THEIR VARIATION IN THERAPEUTIC DIETS

Body Conditions	Body Parts Affected	Physiology	Pathological Physiology and Abnormal Conditions	Food Constituents per Day										Other Factors Contributing to Effective Dietetic Treatment					
				Grams per Kilogram Body weight			Grams		Milli grams		Micro grams		Milli grams		Consistency of Fiber				
Child 'Normal'	Entire body	The maintenance of health and the keeping of all body parts and functions in normal condition		Carbo-hydrate	Protein	Fat	Calories	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid	Vitamin D	Consistency of Fiber		
				6	2	2	1	8	1.33	12	5000	1500	1000	1500	2700	15	0	**	**
Adult Normal (male and female)		Toxins are usually assumed to be absorbed and used by body without showing sensitivity to any food	Hypersensitivity in body cells due to certain foods, probably a protein specific to that food	4	1	1	1	8	1.33	12	5000	1500	1000	1500	2700	15	0	**	N
				6	1.6	2	4	10	20	40	100	200	400	800	1600	3200	6400	12800	25600
Food Allergy		Formation and excretion of the feces which contain indigestible food residue unabsorbed and bacteria	A functional type of constipation lack of muscle tone and peristalsis. Redundant colon may be present	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Constipation Atonic	Large intestine		Hyperirritability due to cathartics coarse food or emotional influences. All fermenting spasm and along as a combination	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Constipation Spastic			Changes in secretion and motility destructive ulcerations and inflammation of entire colon with marked spasm and thickening of intestinal wall	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Colitis			Ulceration to varying depths associated with inflammation of the surrounding mucosa. Hemorrhage or perforation. Hydrochloric acid usually in excess. Anchohydria may occur. Anchohydria motility with or without spasm	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ulcer	Stomach or duodenum	Stomach softening and breaking of food by fermentation and distention of stomach by peptan and hydrochloric acid Duodenal ulceration of carbohydrate protein and fat	Ulceration to varying depths associated with inflammation of the surrounding mucosa. Hemorrhage or perforation. Hydrochloric acid usually in excess. Anchohydria may occur. Anchohydria motility with or without spasm	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
										</									

APPENDIX DIETETICS

Normally, at the end of each outline, abnormal or pathological conditions that may occur, one or several of them, in association with the disease.

The intention of the repetition of statements in the outlines is that under each disease shall be found complete data for the diet.

The dietary outline for pregnancy will serve to illustrate the use of this material. With the preliminary statement of the conditions that indicate body change, the normal food requirements will come to mind automatically, or they can be viewed in the first outline—that for the Normal Diet. The directions for dietetic treatment follow, with a statement of the necessary variations from the normal in food constituents to meet the body changes (in this case an increase of minerals and vitamins) and a brief review of the foods (milk, fruits, and vegetables) that will make valuable contributions of minerals and vitamins. To supplement the statement of the required amounts of the food constituents,—for example, 15 grams of cal

cium,—reference to the Tables of Food Values and Measures will guide the choice of food to satisfy these requirements. Further help will be gained from the tables giving food equivalent in calcium, phosphorus, iron and the vitamins (Tables 29 to 45), as well as the tables giving fruits and vegetables according to their content of minerals (Tables 28, 31, 34) and those giving various combinations that will supply the day's requirement (Tables 30, 33, 36). Likewise when the protein needs to be reduced, as in certain kidney complications, or the calories, for reduction of weight, help will be gained from the tables that give the protein, carbohydrate and fat contents of the foods in terms of their equivalent values (Tables 21, 24, 25, 27).

As research in the fields of both medicine and nutrition adds new knowledge, adjustments will doubtless need to be made in diet therapy. But the principle underlying diet construction will remain steadfast: the diet must supply food in kinds and amounts to fulfill body needs in health and disease.

THE NORMAL DIET

DIETARY OUTLINE

Body part affected The whole body

Physiology The maintenance of all body parts and functions in normal condition

Medical examination The condition of the body is checked by a complete medical examination including

Comparison of present weight with the average weight

Determination of blood pressure pulse temperature examination of head heart lungs abdomen and extremities

Laboratory data Laboratory studies of blood and urine

Dietetic treatment Foods to supply the food constituents in amounts adequate for the protection of health

The food constituents

Carbohydrate

Amount

Adult 4-6 grams per kilogram average body weight

Child 6-10 grams per kilogram average body weight

Qualifying factors should be sufficient to

that condition of a patient and prolonged Chemistry of

and bowel

of its daily excretion

Amount

Adult 1-1½ grams per kilogram average body weight

Child 2-3 grams per kilogram average body weight

Qualifying factor 50 per cent of the minimum requirement should be complete protein

Fat

Amount

Adult 1-2 grams per kilogram average body weight

Child 2-3 grams per kilogram average body weight

Qualifying factor There should be adequate amounts of the fats that carry the fat soluble vitamins

Minerals

Amount

Adult Calcium—8 gram per day

Phosphorus—1.32 grams per day

Iron—12 milligrams per day

	Calcium	Phosphorus	Iron
	Grams per Day	Grams per Day	Milligrams per Day
Adults	0.8	1.32	12
Children			
Under 1 year	1.0	1.0	6
1-3 years	1.0	1.0	7
4-6 years	1.0	1.0	8
7-9 years	1.0	1.0	10
10-12 years	1.0	1.2	12
Girls			
13-15 years	1.3	1.2	15
16-20 years	1.0	1.2	15
Boys			
13-15 years	1.4	1.32	15
16-20 years	1.4	1.32	15

Qualifying factor The foods that supply adequate amounts of these minerals usually carry other necessary minerals

Vitamins

Amount

	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid	Vitamin D
	Inter national Units	Micro grams	Micro grams	Milligrams	Milligrams	Inter national Units
Adults Moderate activity						
Man	5000	1800	2700	18	75	
Woman	5000	1500	2200	15	70	
Children						
Under 1 year	1500	400	600	4	30	400-500
1-3 years	2000	600	900	6	35	
4-6 years	2500	800	1200	8	50	
7-9 years	3,000	1000	1500	10	60	
10-12 years	4500	1200	1800	12	75	
Girls						
13-15 years	5000	1400	2000	14	80	
16-20 years	5000	1200	1800	12	80	
Boys						
13-15 years	5000	1600	2400	16	90	
16-20 years	6000	2000	3000	20	100	

The amount of Vitamin D needed has not been determined for adults and older children but should be provided up to the minimum amount recommended for infants

APPLIED DIETETICS

Qualifying factor These amounts are supplied by the foods of the protective diet

Fluid

Amount

Adult Equivalent to 6-8 glasses of water per day
Child Equivalent to 3-4 glasses of water in addition to milk per day

Qualifying factor Foods as well as beverages supply fluid

Foods

Milk 1 quart daily for the child 1 pint daily for the adult
Milk provides liberally protein containing all the essential amino acids carbohydrate is readily utilized and fat that is especially valuable as a carrier of vitamin A. Its nutritive contribution is calcium, one quart per day supplying in full, the calcium requirement of the child. It provides liberal amounts of phosphorus, and its content of iron though low proportionately is of excellent quality. Ascorbic acid is present in raw milk to a limited degree and is not entirely destroyed by pasteurization. The small amount of vitamin D in milk can be greatly increased by various methods. Milk adds to the thiamine content of the diet and is an excellent, almost necessary source of riboflavin and a good source of niacin. Its contribution of these many food constituents gives milk a preeminent place in a protective diet.
Protein foods At least 60 to 105 grams of protein per day *
Each of these foods supplies about 7 grams of protein

Complete Protein

1 ounce meat
1 egg
1½ ounces fish
1 glass milk
1 ounce cheese
1½ tablespoons soy beans, dried

Incomplete Protein

½ cup dried beans peas lentils (cooked)
2 large potatoes
1 cereal dish cereal
2½ slices bread
1 ounce nuts

An ounce of American cheese contains approximately the same amount of calcium and phosphorus as 1 cup of milk. Cream cheese only half as much, and cottage cheese almost no calcium. Cheese is also a good source of protein fat and the vitamins.
Meat and eggs supply protein of excellent quality, phosphorus and iron. Liver and egg yolk contribute vitamin D but in small amounts. Fish supplies protein phosphorus and some thiamine riboflavin and niacin. Legumes contribute carbohydrate as well as calcium iron, thiamine riboflavin and niacin. The protein of legumes lacks certain essential amino acids but these can be supplied by supplementing the legumes with foods containing complete protein.
Butter and fats 9 teaspoons of fat per day including butter fortified oleomargarine and other kinds of fat.
Fats provide energy. Butter fortified oleomargarine and cream contribute also the fat soluble vitamin A. Fish oils furnish fat soluble vitamins A and D in liberal amounts and for this reason are used for medication. The vegetable fats unless fortified and the oils supply only energy.
Vegetables and Fruits At least two servings of vegetables every day. For safety use a green or yellow vegetable to ensure vitamin A. Potato in addition to other vegetables if desired. At least 2 servings of fruit every day. For safety use a citrus fruit daily to ensure ascorbic acid.

Vegetables and fruits are important sources of minerals and vitamins. They vary in their content of these food constituents both as to kinds and amounts as will be seen on reference to the Tables. The leafy and the yellow vegetables are especially good sources of vitamin A. The seed vegetables containing the embryo of thiamine and the citrus fruits and vegetables that are eaten uncooked of ascorbic acid. The canned vegetables cooked under mechanical processes also retain the greater part of their ascorbic acid content.

* At least half the amount of protein must be complete protein

Both vegetables and fruits are desirable sources of carbohydrate contained in varying amounts, and good sources of cellulose. They add to the alkaline reserve of the body. The organic acids of fruit aid bowel elimination. Dried fruits are of high energy value because of their concentration of sugar and contribute also vitamins and minerals.

Bread, cereals, flour and flour products. Use 8 or more servings per day.

The cereal products (as well as the potato) are the main sources of carbohydrate for most people. They contain some protein also but of a type lacking the essential amino acids—a deficiency which can be made up by combining the cereals with milk or another food containing complete protein. The refined cereal product contributes little else than carbohydrate and a small amount of protein, but the whole grain or restored or enriched product supplies minerals—iron, in particular—thiamine, riboflavin and niacin.

Sugar or sweets. Not more than $\frac{1}{2}$ pound a week of sugar. Other sweets as desired.

Sugar and some other concentrated sweets such as jellies, honey and most kinds of candy contribute little besides carbohydrate. They are pleasing to the taste, but before satisfying the palate with these 'one-sided foods' sufficient amounts of other foods should be given to fulfill the protein, mineral and vitamin needs of the body. Dried fruits furnish also vitamins and minerals and molasses is a good source of calcium and an excellent source of iron and these foods can be made into attractive candies.

Coffee and tea should not be allowed to displace essential foods. Without cream or sugar they have no food value.

Meals

The number of meals should follow the established routine of the patient provided the food intake is adequate in quantity and quality to fulfill the body's needs. It may be desirable that the younger children especially and some adults as well should have three small meals with intermediate feedings. For all children the evening meal should be light.

Environmental factors that influence the effectiveness of the diet

Effective dietetic treatment requires conditions of living favorable to the practice of good habits of personal hygiene, both physical and mental. Regular habits of sleep, rest and activity and regularity of bowel elimination are essential. Matters pertaining to income, the occupation, the necessities of life and to racial and religious customs exert an important influence on the carrying out of the diet.

Education of the patient

To carry out his diet intelligently the patient should understand the relation of food to the body, and he should know the kinds and amounts of food that will fulfill his needs for growth and health. He should know the equivalent values of foods to be able to adapt his diet to tastes, desires, habits, income and other environmental conditions and at the same time fulfill his food requirements. He will acquire this knowledge the more surely through methods of visual education.

FOOD ALLERGY

DIETARY OUTLINE

Body part affected. Skin and mucous membrane, especially of the respiratory and gastrointestinal tract.

Physiology. Foods are assimilated and used normally without evidence of sensitivity on the part of the body toward any particular food or foods.

Pathological physiology. Hypersensitivity of the body cells to certain foods (i.e. to a protein that is specific to the food).

Usually a familial tendency to food sensitiveness, symptoms often varying in different members of the family.

Contributing factors. Climate, season, sunshine, moisture, heat, cold.

Dust, smoke, fumes, air conditions.

Clothing, furs, feathers, emanations and substances from plants and animals, toilet accessories, antiseptics and detergents, tobacco.

Neighborhood, school, occupation, recreation.

Household furniture and furnishings.

Emotional disturbances.

Infections.

Laboratory data Routine urine and blood studies as required in a complete medical examination

Radiographs to rule out other respiratory and gastrointestinal conditions that may produce the same symptoms that arise in food allergy

Tests for diagnosis Various types of tests (skin and mucous membrane) made with the protein extracts of the commonly used foods

Elimination diets

Dietetic Treatment Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain the desired weight. Treatment may include one or more of the following procedures, depending upon the practice of the physician: complete elimination of the foods to which skin tests show the patient to be allergic, routine restriction, without tests of foods that commonly give rise to unfavorable symptoms, omission of foods that belong to the same biologic group as the food to which the patient is found to be allergic, use of the elimination diet, the choice of foods being guided by the results obtained, avoidance of foods that are significant causes of symptoms as indicated by the patient's history. When the foods allowed cannot supply adequate amounts of the food constituents it will be necessary to supplement the diet by medication. Care should be taken that the medication does not contain a substance to which the patient is allergic.

The Food Constituents

Carbohydrate

Amount Normal

Qualifying factor An excess amount of concentrated sweets may produce fermentation in the gastrointestinal tract and should be avoided

Protein

Amount Normal

Qualifying factor If the patient is sensitive to many of the foods containing complete protein, liberal amounts of the foods that are allowed are given to insure the adequacy of the diet

Fat

Amount Normal

Qualifying factor Easily digested fats of low melting point should be chosen

Minerals

Amount Normal

Qualifying factor When foods that would supply the mineral requirement have to be omitted, medication must be prescribed

Vitamins

Amount Normal

Qualifying factor If amounts supplied by food are inadequate, medication should be prescribed. Care should be taken that the patient is not allergic to the foods chosen for their high vitamin content.

Foods

A Foods to which the patient is sensitive are determined by skin tests or trial food tests and by the personal history of food sensitiveness. They must be entirely eliminated until the patient has been symptom free for a satisfactory period. The foods may then be re-introduced into the diet, one at a time, and in very small amounts until it becomes clear in what amounts, if any, they can be tolerated.

B Foods that are to be restricted without tests according to various authorities

Very hot and very cold foods

Condiments and spices and richly spiced foods

Concentrated sweets: candy, jam, jelly

Fried foods, pastries and hot breads

Various kinds of fish, especially shell fish, the oyster excepted

Certain kinds of meat: turkey, veal, pork, ham, bacon, liver and other organs

Highly flavored cheeses

Vegetables and fruits that form gas

Nuts

Cocoa and chocolate

C Foods for the diet

Milk is one of the foods to which many people are sensitive. If it must be eliminated special thought must be given to the adequacy of the diet in particular with respect to the growing child. In such case the calcium, phosphorus and vitamins supplied by the diet may have to be supplemented by the use of other foods which are good sources of these food constituents, or by medication. Frequently the patient who is sensitive to milk is found to tolerate it when it is rendered hypoallergic through heating processes as in the case of boiled, evaporated or dried milk. Milk from animals other than the cow may be substituted if the tests are negative. Cheese if tolerated helps greatly to fulfill the requirements for calcium and phosphorus. Proprietary foods are offered as milk substitutes but cannot be used when they contain any of the foods forbidden to the patient.

Meat fish and poultry of the kinds allowed should be carefully evaluated and given in amounts needed to make an adequate contribution to the diet.

Eggs a valuable source of many food constituents, are common offenders. When they have to be excluded from the diet careful thought must be given to the selection of foods equivalent in food value. Medication may have to be prescribed.

Fats Usually butter is tolerated but if not, the fat must be supplied by other foods and care must be taken to secure sufficient vitamin A from food or by medication. Heavy cream which may be diluted if desired is often tolerated even though the patient is sensitive to milk. Only easily digested fats of low melting point should be used. The oils and fats derived from foods to which the patient is sensitive should not be used in any way.

Vegetables and fruits Various vegetables and fruits may have to be eliminated. Liberal amounts of those that are allowed especially the seed vegetables should be given to ensure sufficient minerals and vitamins and to increase the carbohydrate content of the diet. The soybean and its various preparations are excellent sources of protein and fat minerals and vitamins. They sometimes are used as substitutes for meat milk and egg in the diet. When oranges and tomatoes are eliminated special care must be taken to ensure adequate amounts of ascorbic acid by the use of other foods or by medication.

Breads and cereals The grains—wheat oats rye rice corn barley and buckwheat—are common offenders. Wheat is the only cereal flour that makes a good raised bread. Breads made from other cereal flours are not so palatable and are not eaten so freely. When wheat is not allowed therefore care must be taken to see that sufficient amounts of minerals and vitamins are supplied from other food sources or by medication.

Sugar and concentrated sweets such as candy jam and jelly, should not be allowed in large amounts as they tend to produce fermentation in the gastro intestinal tract.

Nuts may not be found by any of the tests to be the cause of food allergy but they may provoke irritation with coughing.

Meals

The number of meals should follow the established routine of the patient. The food should be so distributed that there will be no excess at any meal. It is advisable especially for children to have the main meal at noon time. If the adult desires food at bedtime only a small amount of food that is digestible and of a kind allowed by the diet should be taken.

Environmental factors that influence the effectiveness of the diet

Good habits of personal hygiene both physical and mental should be established.

If many of the commonly used and less expensive foods are eliminated foods may have to be prescribed that will necessarily increase the cost of the diet.

Medication should be taken only under the direction of a physician. If the patient is sensitive to such substances as animal emanations he should avoid contact with them. If pollens from trees or grasses affect him unfavorably he should be desensitized to them.

Laboratory data Routine urine and blood studies as required in a complete medical examination

Radiographs to rule out other respiratory and gastrointestinal conditions that may produce the same symptoms that arise in food allergy

Tests for diagnosis Various types of tests (skin and mucous membrane) made with the protein extracts of the commonly used foods

Elimination diets

Dietetic Treatment Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain the desired weight. Treatment may include one or more of the following procedures, depending upon the practice of the physician: complete elimination of the foods to which skin tests show the patient to be allergic; routine restriction, without tests of foods that commonly give rise to unfavorable symptoms; omission of foods that belong to the same biologic group as the food to which the patient is found to be allergic; use of the elimination diet; the choice of foods being guided by the results obtained, avoidance of foods that are significant causes of symptoms as indicated by the patient's history. When the foods allowed cannot supply adequate amounts of the food constituents it will be necessary to supplement the diet by medication. Care should be taken that the medication does not contain a substance to which the patient is allergic.

The Food Constituents

Carbohydrate

Amount Normal

Qualifying factor An excess amount of concentrated sweets may produce fermentation in the gastrointestinal tract and should be avoided

Protein

Amount Normal

Qualifying factor If the patient is sensitive to many of the foods containing complete protein, liberal amounts of the foods that are allowed are given to insure the adequacy of the diet

Fat

Amount Normal

Qualifying factor Easily digested fats of low melting point should be chosen

Minerals

Amount Normal

Qualifying factor When foods that would supply the mineral requirement have to be omitted, medication must be prescribed

Vitamins

Amount Normal

Qualifying factor If amounts supplied by food are inadequate, medication should be prescribed. Care should be taken that the patient is not allergic to the foods chosen for their high vitamin content

Foods

- A Foods to which the patient is sensitive are determined by skin tests or trial food tests, and by the personal history of food sensitiveness. They must be entirely eliminated until the patient has been symptom free for a satisfactory period. The foods may then be re-introduced into the diet one at a time, and in very small amounts, until it becomes clear in what amounts, if any, they can be tolerated.
- B Foods that are to be restricted, without tests, according to various authorities:
 - Very hot and very cold foods
 - Condiments and spices and richly spiced foods
 - Concentrated sweets: candy, jam, jelly
 - Fried foods: pastries and hot breads
 - Various kinds of fish, especially shell fish, the oyster excepted
 - Certain kinds of meat: turkey, veal, pork, ham, bacon, liver and other organs
 - Highly flavored cheeses
 - Vegetables and fruits that form gas
 - Nuts
 - Cocoa and chocolate

C Foods for the diet

Milk is one of the foods to which many people are sensitive. If it must be eliminated, special thought must be given to the adequacy of the diet, in particular with respect to the growing child. In such case the calcium, phosphorus and vitamins supplied by the diet may have to be supplemented by the use of other foods which are good sources of these food constituents or by medication. Frequently the patient who is sensitive to milk is found to tolerate it when it is rendered hypoallergic through heating processes as in the case of boiled, evaporated, or dried milk. Milk from animals other than the cow may be substituted if the tests are negative. Cheese if tolerated helps greatly to fulfill the requirements for calcium and phosphorus. Proprietary foods are offered as milk substitutes but cannot be used when they contain any of the foods forbidden to the patient.

Meat, fish and poultry of the kinds allowed should be carefully evaluated and given in amounts needed to make an adequate contribution to the diet.

Eggs a valuable source of many food constituents are common offenders. When they have to be excluded from the diet careful thought must be given to the selection of foods equivalent in food value. Medication may have to be prescribed.

Fats Usually butter is tolerated but if not, the fat must be supplied by other foods and care must be taken to secure sufficient vitamin A from food or by medication. Heavy cream which may be diluted if desired is often tolerated even though the patient is sensitive to milk. Only easily digested fats of low melting point should be used. The oils and fats derived from foods to which the patient is sensitive should not be used in any way.

Vegetables and fruits Various vegetables and fruits may have to be eliminated. Liberal amounts of those that are allowed especially the seed vegetables should be given to ensure sufficient minerals and vitamins and to increase the carbohydrate content of the diet. The soybean and its various preparations are excellent sources of protein and fat minerals and vitamins. They sometimes are used as substitutes for meat milk and egg in the diet. When oranges and tomatoes are eliminated special care must be taken to ensure adequate amounts of ascorbic acid by the use of other foods or by medication.

Breads and cereals The grains—wheat oats rye rice, corn barley and buckwheat—are common offenders. Wheat is the only cereal flour that makes a good raised bread. Breads made from other cereal flours are not so palatable and are not eaten so freely. When wheat is not allowed therefore care must be taken to see that sufficient amounts of minerals and vitamins are supplied from other food sources or by medication.

Sugar and concentrated sweets such as candy jam and jelly, should not be allowed in large amounts as they tend to produce fermentation in the gastro intestinal tract.

Nuts may not be found by any of the tests to be the cause of food allergy but they may provoke irritation with coughing.

Meals

The number of meals should follow the established routine of the patient. The food should be so distributed that there will be no excess at any meal. It is advisable especially for children to have the main meal at noon time. If the adult desires food at bedtime only a small amount of food that is digestible and of a kind allowed by the diet should be taken.

Environmental factors that influence the effectiveness of the diet

Good habits of personal hygiene both physical and mental should be established. If many of the commonly used and less expensive foods are eliminated foods may have to be prescribed that will necessarily increase the cost of the diet.

Medication should be taken only under the direction of a physician. If the patient is sensitive to such substances as animal emanations he should avoid contact with them. If pollens from trees or grasses affect him unfavorably he should be desensitized to them.

APPLIED DIETETICS

Laboratory data Routine urine and blood studies as required in a complete medical examination

Radiographs to rule out other respiratory and gastrointestinal conditions that may produce the same symptoms that arise in food allergy

Tests for diagnosis Various types of tests (skin and mucous membrane) made with the protein extracts of the commonly used foods

Elimination diets Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain the desired weight

Dietetic Treatment Treatment may include one or more of the following procedures depending upon the practice of the physician

complete elimination of the foods to which skin tests show the patient to be allergic, routine restriction without tests, of foods that commonly give rise to unfavorable symptoms, omission of foods that belong to the same biologic group as the food to which the patient is found to be allergic, use of the elimination diet, the choice of foods being guided by the results obtained

avoidance of foods that are significant causes of symptoms as indicated by the patient's history

When the foods allowed cannot supply adequate amounts of the food constituents it will be necessary to supplement the diet by medication

Care should be taken that the medication does not contain a substance to which the patient is allergic

The Food Constituents

Carbohydrate

Amount Normal

Qualifying factor An excess amount of concentrated sweets may produce fermentation in the gastrointestinal tract and should be avoided

Protein

Amount Normal

Qualifying factor If the patient is sensitive to many of the foods containing complete protein liberal amounts of the foods that are allowed are given to insure the adequacy of the diet

Fat

Amount Normal

Qualifying factor Easily digested fats of low melting point should be chosen

Minerals

Amount Normal

Qualifying factor When foods that would supply the mineral requirement have been omitted, medication must be prescribed

Vitamins

Amount Normal

Qualifying factor If amounts supplied by food are inadequate medication should be prescribed

Care should be taken that the patient is not allergic to the foods chosen for their high vitamin content

- Foods**
- A** Foods to which the patient is sensitive are determined by skin tests or trial food tests and by the personal history of food sensitiveness
- They must be entirely eliminated until the patient has been symptom free for a satisfactory period
- The foods may then be re introduced into the diet one at a time, and in very small amounts until it becomes clear in what amounts if any they can be tolerated
- B** Foods that are to be restricted without tests, according to various authorities
- Very hot and very cold foods
- Condiments and spices and richly spiced foods
- Concentrated sweets candy jam jelly
- Fried foods pastries and hot breads
- Various kinds of fish especially shell fish, the oyster excepted
- Certain kinds of meat turkey veal pork ham, bacon liver and other organs
- Highly flavored cheeses
- Vegetables and fruits that form gas
- Nuts
- Cocoa and chocolate

Contributing factors Faulty food habits

Insufficient fluid intake

Insufficient food intake in either kind or amount or in both

Insufficient activity

Type of occupation

Unfavorable environment

Inadequate toilet facilities

Sense of hurry

Body fatigue

Poor posture

Excessive use of cathartics

Emotional strain

Laboratory data Routine urine and blood studies as required in a complete medical examination

Radiographs of the intestine are desirable to determine the type of constipation to rule out organic obstruction and to confirm diagnosis

Examination of feces

Dietetic treatment Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain desired weight The diet should include sufficient water, and sufficient but not excessive bulk, to help to restore the normal muscle tone of the intestine and the regular bowel elimination**The food constituents***Carbohydrate*

Amount Normal

Qualifying factor Sufficient but not excessive bulk or cellulose should be provided to stimulate elimination

Protein

Amount Normal

Fat

Amount Normal

Qualifying factor Unabsorbable inorganic oil is used as an intestinal lubricant Excessive use of mineral oil should be avoided however, as it interferes with the absorption of carotene

Minerals

Amount Normal

Vitamins

Amount Normal

Qualifying factor There should be liberal amounts of foods containing thiamine to promote the tonicity of the digestive tract Medication is prescribed when needed to increase the thiamine content

Fluid

Amount Normal 8 to 10 glasses daily

Qualifying factor Foods as well as beverages supply fluid

Foods

Milk adds to the thiamine content of the diet It is also a good source of other vitamins and of protein calcium and phosphorus carbohydrate and fat

Meat fish poultry and egg provide efficient protein and varying amounts of minerals and vitamins The glandular organs fish roe and eggs add to the thiamine content of the diet

Butter fortified oleomargarine and cream provide vitamin A besides adding to the fat content of the diet Vegetable oils and fats that have not been fortified are lacking in vitamin A

Vegetables and fruits also contribute thiamine and their cellulose and organic acids have laxative properties They tend to form gas and act as a slight stimulant by breaking up hard masses in the intestine They supply other vitamins as well as minerals and carbohydrate in varying amounts Three to four servings of vegetables and two to three servings of fruit should be taken daily for the necessary cellulose

The nutritional history of the patient is of great importance in revealing factors emotional and environmental as well as clinical, that are direct causes of, or predisposing to, symptoms

Education of the patient

The patient should learn the meaning of food allergy and its relation to his condition. He should understand that strict adherence to the diet is necessary to evaluate the effectiveness of the diet. He should learn that by taking larger amounts of the foods that he can tolerate and by including in his diet foods with which he may be unfamiliar or *unaccustomed but which are allowed*, he can help to fulfill his requirements of food constituents and calories.

In addition to verbal instruction he should be given printed material to take home. This should include

Lists of foods that he is *not* to eat, including the "hidden" foods,—those containing even minute amounts of a forbidden food that is not visible or revealed by taste or descriptive name

Lists of foods that he *can* eat (including only the foods to which he is not sensitive) with the amounts necessary to fulfill normal food requirements

Lists of equivalents within the food groups allowed, to help him to vary his meals

Recipes which contain only foods that are allowed,—for example, recipes for bread that contain only the cereals allowed

All of these instructions must be adapted to the intelligence of the patient

Abnormal conditions and diseases that may be found in association with food allergy

Acne
Angioneurotic edema
Bronchial asthma
Certain rheumatic conditions
Constipation
Eczema
Gastrointestinal disturbances
Hay fever
Migraine
Nasal obstructions
Pruritis
Purpura
Sinus conditions
Skin eruptions
Upper respiratory infections
Urticaria
Vasomotor rhinitis

ATONIC CONSTIPATION

DIETARY OUTLINE

Body part affected The gastrointestinal tract particularly the colon

Physiology Formation of feces that are soft but firm in consistency and which contain undigested residue of food unabsorbed secretions, water and bacteria. Elimination of feces, sufficient in quantity and at regular frequency—daily or at least every forty-eight hours. Absorption of water

Abnormal conditions Regular action of the bowels is deranged
Irregularity infrequency and difficulty of defecation
Stools insufficient in quantity
Stools abnormally hard and dry
Lack of muscle tone of the intestine
Redundant colon sometimes present

Contributing factors Faulty food habits
 Insufficient fluid intake
 Insufficient food intake in either kind or amount or in both
 Insufficient activity
 Type of occupation
 Unfavorable environment
 Inadequate toilet facilities
 Sense of hurry
 Body fatigue
 Poor posture
 Excessive use of cathartics
 Emotional strain

Laboratory data Routine urine and blood studies as required in a complete medical examination
 Radiographs of the intestine are desirable to determine the type of constipation, to rule out organic obstruction and to confirm diagnosis

Examination of feces

Dietetic treatment Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain desired weight. The diet should include sufficient water and sufficient but not excessive bulk to help to restore the normal muscle tone of the intestine and the regular bowel elimination

The food constituents

Carbohydrate

Amount Normal

Qualifying factor Sufficient but not excessive bulk or cellulose should be provided to stimulate elimination

Protein

Amount Normal

Fat

Amount Normal

Qualifying factor Unabsorbable inorganic oil is used as an intestinal lubricant. Excessive use of mineral oil should be avoided however as it interferes with the absorption of carotene

Minerals

Amount Normal

Vitamins

Amount Normal

Qualifying factor There should be liberal amounts of foods containing thiamine to promote the tonicity of the digestive tract. Medication is prescribed when needed to increase the thiamine content

Fluid

Amount Normal 6 to 8 glasses daily

Qualifying factor Foods as well as beverages supply fluid

Foods

Milk adds to the thiamine content of the diet. It is also a good source of other vitamins and of protein calcium and phosphorus carbohydrate and fat

Meat fish poultry and egg provide efficient protein and varying amounts of minerals and vitamins. The glandular organs fish roe and eggs add to the thiamine content of the diet

Butter fortified oleomargarine and cream provide vitamin A besides adding to the fat content of the diet. Vegetable oils and fats that have not been fortified are lacking in vitamin A

Vegetables and fruits also contribute thiamine and their cellulose and organic acids have laxative properties. They tend to form gas and act as a slight stimulant by breaking up hard masses in the intestine. They supply other vitamins as well as minerals and carbohydrate in varying amounts. Three to four servings of vegetables and two to three servings of fruit should be taken daily for the necessary cellulose

The nutritional history of the patient is of great importance in revealing factors emotional and environmental as well as clinical, that are direct causes of, or predisposing to, symptoms

Education of the patient

The patient should learn the meaning of food allergy and its relation to his condition. He should understand that strict adherence to the diet is necessary to evaluate the effectiveness of the diet. He should learn that by taking larger amounts of the foods that he can tolerate and by including in his diet foods with which he may be unfamiliar or unaccustomed but which are allowed, he can help to fulfill his requirements of food constituents and calories.

In addition to verbal instruction he should be given printed material to take home. This should include

Lists of foods that he is not to eat including the "hidden" foods—those containing even minute amounts of a forbidden food that is not visible or revealed by taste or descriptive name

Lists of foods that he can eat (including only the foods to which he is not sensitive) with the amounts necessary to fulfill normal food requirements

Lists of equivalents within the food groups allowed, to help him to vary his meals

Recipes which contain only foods that are allowed—for example, recipes for bread that contain only the cereals allowed

All of these instructions must be adapted to the intelligence of the patient.

Abnormal conditions and diseases that may be found in association with food allergy

Acne
Angioneurotic edema
Bronchial asthma
Certain rheumatic conditions
Constipation
Eczema
Gastrointestinal disturbances
Hay fever
Migraine
Nasal obstructions
Pruritis
Purpura
Sinus conditions
Skin eruptions
Upper respiratory infections
Urticaria
Vasomotor rhinitis

ATONIC CONSTIPATION

DIETARY OUTLINE

Body part affected: The gastrointestinal tract particularly the colon

Physiology: Formation of feces that are soft but firm in consistency and which contain undigested residue of food, unabsorbed secretions, water and bacteria; elimination of feces, sufficient in quantity and at regular frequency—daily or at least every forty-eight hours. Absorption of water.

Abnormal conditions: Regular action of the bowels is deranged

Irregularity, infrequency and difficulty of defecation
Stools insufficient in quantity
Stools abnormally hard and dry
Lack of muscle tone of the intestine
Redundant colon sometimes present

laboratory data Routine urine and blood studies as required in a complete medical examination

Radiographs of the intestine to determine type of constipation and to rule out organic obstructions

Examination of feces

dietetic treatment Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain desired weight. The foods supplied must be smooth in consistency and as nearly as possible non irritating to the gastrointestinal tract (see Peptic Ulcer p 178)

the food constituents

Carbohydrate

Amount Normal

Qualifying factor Concentrated sweets and coarse foods should be omitted to avoid irritation

Protein

Amount Normal

Fat

Amount Normal

Minerals

Amount Normal

Qualifying factor If amounts supplied by food are insufficient medication should be prescribed

Vitamins

Amount Normal

Qualifying factor Foods should supply thiamine in liberal amounts to improve the tonicity of the digestive tract. When foods do not supply sufficient amounts of thiamine medication is prescribed

Fluid

Amount Normal

Qualifying factor The desired amount may be supplied by foods as well as by beverages

foods

A Consistency

The diet must be smooth and bland. Any residue should be soft and non irritating. Fruits and vegetables should be cooked and strained or mashed to soften the cellulose and as much of the cellulose as possible should be removed. Refined cereals should be used but whole grain cereals are permitted if very finely ground or cooked and strained. Only meat of short fiber and fish or chicken should be given and in some conditions they are entirely omitted. Under these circumstances the mineral and vitamin intake may be inadequate and medication must be prescribed.

Variety in food as to kind and consistency is increased gradually as the patient's condition improves until the normal diet can again be used.

B Foods to be avoided as causing irritation because they increase motility stimulate the gastric juice contain undigested fiber or tend to form gas

Fruits vegetables whole grain cereals and nuts that contain appreciable amounts of cellulose

Foods that ferment readily and form gas—concentrated sweets and foods high in cellulose

Highly seasoned foods

Tes coffee and cocoa

Alcohol used sparingly if at all

C Foods for the diet

Milk a bland food containing no cellulose and contributing richly to body needs may be used as the basis of this diet. It provides a good quality of protein that is non stimulating easily digested carbohydrate and fat liberal amounts of calcium and phosphorus and varying amounts of the vitamins

APPLIED DIETETICS

Whole grain bread and cereals are excellent sources of thiamine and of cellulose as well as of carbohydrate. Their mineral content also is high. At least one serving of a whole grain product should be taken at each meal. Candy and concentrated starches and sweets should not be allowed to the extent of excluding from the day's food intake the foods necessary to supply vitamins and minerals in adequate amounts.

Meals Meals may follow the established routine of the patient but must include the total amount of food necessary to fulfill the food prescription. Eating between meals is not desirable except when intermediate feedings at regular hours are necessary. Fluids taken before and after meals, particularly the breakfast often facilitate the bowel movement.

Environmental factors that influence the effectiveness of the diet Sufficient amounts of rest and sleep a liberal intake of water the establishment of a regular time for the daily bowel movement and freedom from mental and emotional distress assist bowel elimination. Comfortable toilet facilities should be available with satisfactory conditions of heat, light and ventilation. Exercises to increase muscle tone and to improve posture should be directed by the physician. Dental defects should be corrected, for proper mastication.

Education of the patient The patient should be shown a picture or chart of the intestine or colon. He should understand what its function is and that in his body its functioning is faulty, needing to be "toned up." He should understand that the purpose of his diet is to stimulate the intestine or colon through a food intake that is adequate both in kind and amount. He should understand that proper habits of hygiene are of great importance in cultivating daily bowel elimination—in particular the visit to the toilet at a regular time as so planned that there will be no sense of hurry also that the response to the call for defecation should not be delayed lest the desire pass away.

Abnormal conditions and diseases that may be found in association with atonic constipation

- Avitaminosis
- Gastro disturbances
- Headache
- Malaise
- Poor posture
- Psychoneurosis
- Symptoms of fatigue

SPASTIC CONSTIPATION

DIETARY OUTLINE

Body part affected The gastrointestinal tract particularly the colon

Physiology Formation of feces that are soft but firm in consistency and which contain undigested residue of food unabsorbed secretions water and bacteria elimination of feces, sufficient in quantity and at regular frequency—daily or at least every forty eight hours

Abnormal conditions Spasm or alternating spasm and atony

Contributing factors Redundant colon in some cases

- Extreme sensitivity to any type of stimulation
- Hyperirritability of the colon due to
- Excessive use of cathartics
- Too liberal use of coarse foods
- Immoderate use of foods that are chemically stimulating
- Emotional disturbances
- Body fatigue
- A combination of these various factors

Pathological physiology Destructive ulcerating lesions involving the colon, wholly or in part, with marked inflammation

Laboratory data Routine urine and blood studies as required in a complete medical examination

Examination of the feces

Proctoscopic examination

Bacteriological examination of secretions from lesions in the colon

Radiographic studies

Dietetic treatment Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain desired weight. The food must be non irritating to the digestive tract

The food constituents

Carbohydrate

Amount Normal

Qualifying factor Cellulose which is an irritant and concentrated sweets which may form gas and produce irritation should be excluded

Protein

Amount Normal

Qualifying factor Meats of long fiber, irritating to the colon should not be given

Fat

Amount Normal

Minerals

Amount Normal

Qualifying factor If sufficient amounts are not supplied by food medication should be prescribed

Vitamins

Amount Normal

Qualifying factor Some authorities give a high vitamin diet. If sufficient amounts are not provided by food medication is prescribed

Foods

A Consistency

The diet should be smooth with as little residue as possible. Fruits and vegetables should be cooked and strained to soften the cellulose and to remove as much of it as possible. Cereal products must be of such a consistency as to avoid irritation. White bread and crackers are generally used but those made from very finely ground whole grain flour are allowed. Cereals should be refined but whole grain cereals are permitted if very finely ground or cooked and strained.

B Foods to be avoided as causing irritation because they increase motility, stimulate the gastric juice contain undigested fiber or tend to form gas

Fruits, vegetables and whole grain cereals that contain appreciable amounts of cellulose

Meats containing long fiber

Concentrated sweets which ferment easily and produce gas

Condiments and spices—pepper vinegar mustard and other sources

Extractives from meat—broths soups and gravies

Very hot or very cold foods especially the latter

Nuts

Tea coffee and cocoa

C Foods for the diet

Milk a bland food without cellulose and with rich contributions for body needs can be used freely in most cases

Meat fish and chicken are valuable for their protein iron and vitamins and should be added to the diet as soon as tolerated the most tender kinds being given first

Eggs are a good source of protein fat phosphorus iron and most of the vitamins

Butter and cream provide fat which carries vitamin A whereas vegetable oils and fats are lacking in the vitamin unless they have been fortified with vitamin A

Meat, fish and poultry, valuable for their protein, mineral and vitamin content, should be given as soon as possible, using first the kinds that are of short fiber. The glandular organs, and fish roe and oysters are sources of thiamine, riboflavin and niacin

Eggs are usually well tolerated. They are a good source of protein, phosphorus, iron and most of the vitamins

Butter and cream provide fat which carries vitamin A, whereas vegetable oils and fats are lacking in the vitamin unless they have been fortified with vitamin A

Vegetables and fruits, which supply minerals and vitamins, as well as carbohydrate in varying amounts, should be added to the diet as soon as they can be tolerated. Strained orange juice and tomato juice may be given early in treatment, and as the condition of the patient improves, vegetables containing least cellulose, and tender vegetables, such as young beets and carrots, the tender leaves of spinach, squash, string beans, asparagus tips and others of like consistency, may be given without straining

White bread and refined cereals that have been enriched may be used as they carry vitamins and minerals

Sugar and concentrated sweets, which ferment easily and produce gas and consequently are irritating, should be included only in very small amounts

Meals

Meals may be adjusted to the established routine of the patient, provided the amount and kinds of food eaten fulfill the food prescription

Environmental factors that influence the effectiveness of the diet

Good habits of personal hygiene both physical and mental are exceedingly important—in particular the habit of the regular bowel movement adapted to the daily routine. Medication should be used only as prescribed by the physician

Education of the patient

The patient should be shown a picture or chart of the intestine, in both normal and spastic conditions. He should understand the function of the intestine and that his condition is due to irregular spasms of the colon

He should understand that the purpose of his diet is to overcome this irritability and help to restore the normal movement of the bowel by using foods that are soft and smooth in consistency and non irritating

He should be shown the refined cereal, and the use of the sieve or strainer to remove the rough age in his servings of fruit, vegetables and whole grain cereal. He should be given a list of the types and kinds of food that he should avoid. He should have recipes to help him to vary his diet

He should recognize that sufficient rest periods and sleep and a regular time for the bowel movement under conditions of leisure and serenity, are helpful in establishing the habit of daily bowel elimination

Abnormal conditions and diseases that may be found in association with spastic constipation

Avitaminosis

Gastric disturbances

Headache

Poor posture

Psychoneurosis

Symptoms of fatigue

COLITIS

DIETARY OUTLINE

Body part affected The large intestine

Physiology Formation and elimination of the feces which contain indigestible food residue, unabsorbed digestive secretions, water, and bacteria

Abnormal conditions Changes in secretion (mucous type)

Changes in motility (spastic and atonic types)

Pathological physiology Destructive ulcerating lesions involving the colon wholly or in part with marked inflammation

Laboratory data Routine urine and blood studies as required in a complete medical examination

Examination of the feces

Proctoscopic examination

Bacteriological examination of secretions from lesions in the colon

Radiographic studies

Dietetic treatment Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain desired weight. The food must be non irritating to the digestive tract

The food constituents

Carbohydrate

Amount Normal

Qualifying factor Cellulose, which is an irritant and concentrated sweets which may form gas and produce irritation should be excluded

Protein

Amount Normal

Qualifying factor Meats of long fiber irritating to the colon should not be given

Fat

Amount Normal

Minerals

Amount Normal

Qualifying factor If sufficient amounts are not supplied by food, medication should be prescribed

Vitamins

Amount Normal

Qualifying factor Some authorities give a high vitamin diet. If sufficient amounts are not provided by food medication is prescribed

Foods

A Consistency

The diet should be smooth with as little residue as possible. Fruits and vegetables should be cooked and strained to soften the cellulose and to remove as much of it as possible. Cereal products must be of such a consistency as to avoid irritation. White bread and crackers are generally used but those made from very finely ground whole grain flour are allowed. Cereals should be refined but whole grain cereals are permitted if very finely ground or cooked and strained.

B Foods to be avoided as causing irritation because they increase motility stimulate the gastric juice contain undigested fiber or tend to form gas

Fruits vegetables and whole grain cereals that contain appreciable amounts of cellulose

Meats containing long fiber

Concentrated sweets which ferment easily and produce gas

Condiments and spices—pepper vinegar mustard and other sources

Extractives from meat—broths soups and gravies

Very hot or very cold foods especially the latter

Nuts

Tea coffee and cocoa

C Foods for the diet

Milk a bland food without cellulose and with rich contributions for body needs can be used freely in most cases

Meat fish and chicken are valuable for their protein iron and vitamins and should be added to the diet as soon as tolerated the most tender kinds being given first

Eggs are a good source of protein fat phosphorus iron and most of the vitamins

Butter and cream provide fat which carries vitamin A whereas vegetable oils and fats are lacking in the vitamin unless they have been fortified with vitamin A

APPLIED DIETETICS

Meat, fish and poultry, valuable for their protein mineral and vitamin content, should be given as soon as possible, using first the kinds that are of short fiber. The glandular organs, and fish roe and oysters are sources of thiamine, riboflavin and niacin.

Eggs are usually well tolerated and most of the vitamins. They are a good source of protein, phosphorus, iron and butter and cream provide fat which carries vitamin A, whereas vegetable oils and fats are lacking in the vitamin unless they have been fortified with vitamin A.

Vegetables and fruits, which supply minerals and vitamins, as well as carbohydrates in varying amounts, should be added to the diet as soon as they can be tolerated. Strained orange juice and tomato juice may be given early in treatment and as the condition of the patient improves vegetables containing least cellulose, and tender vegetables, such as young beets and carrots the tender leaves of spinach, squash, string beans, asparagus tips, and others of like consistency, may be given without straining.

White bread and refined cereals that have been enriched may be used as they carry vitamins and minerals. Sugar and concentrated sweets, which ferment easily and produce gas and consequently are irritating should be included only in very small amounts.

Meals may be adjusted to the established routine of the patient provided the amount and kinds of food eaten fulfill the food prescription. Good habits of personal hygiene both physical and mental, are exceedingly important in particular the habit of the regular bowel movement adapted to the daily routine. Education of the patient should be used only as prescribed by the physician.

The patient should be shown a picture or chart of the intestine in both normal and spastic conditions. He should understand the function of the intestine and that his condition is due to irregular spasms of the colon. He should understand that the purpose of the diet is to overcome this irritability and help to restore the normal movement of the bowel by using foods that are soft and smooth in consistency and non irritating.

He should be shown the refined cereal, and the use of the sieve or strainer to remove the roughage in his servings of fruit vegetables and whole grain cereal. He should be given a list of the types and kinds of food that he should avoid. He should have recipes to help him to vary his diet.

He should recognize that sufficient rest periods and sleep and a regular time for the bowel movement under conditions of leisure and serenity are helpful in establishing the habit of daily bowel elimination.

Abnormal conditions and diseases that may be found in association with spastic constipation
 Avitaminosis
 Gastric disturbances
 Headache
 Poor posture
 Psychoneurosis
 Symptoms of fatigue

COLITIS

DIETARY OUTLINE

Body part affected The large intestine
Physiology Formation and elimination of the feces which contain indigestible food residue, unabsorbed digestive secretions water and bacteria
Abnormal conditions Changes in secretion (mucous type)
 Changes in motility (spastic and atonic types)

Pathological physiology Destructive ulcerating lesions involving the colon, wholly or in part with marked inflammation

Laboratory data Routine urine and blood studies as required in a complete medical examination

Examination of the feces

Proctoscopic examination

Bacteriological examination of secretions from lesions in the colon

Radiographic studies

Dietetic treatment Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain desired weight. The food must be non irritating to the digestive tract

The food constituents

Carbohydrate

Amount Normal

Qualifying factor Cellulose which is an irritant and concentrated sweets, which may form gas and produce irritation should be excluded

Protein

Amount Normal

Qualifying factor Meats of long fiber irritating to the colon, should not be given

Fat

Amount Normal

Minerals

Amount Normal

Qualifying factor If sufficient amounts are not supplied by food medication should be prescribed

Vitamins

Amount Normal

Qualifying factor Some authorities give a high vitamin diet. If sufficient amounts are not provided by food medication is prescribed

Foods

A Consistency

The diet should be smooth with as little residue as possible. Fruits and vegetables should be cooked and strained to soften the cellulose and to remove as much of it as possible. Cereal products must be of such a consistency as to avoid irritation. White bread and crackers are generally used but those made from very finely ground whole grain flour are allowed. Cereals should be refined but whole grain cereals are permitted if very finely ground or cooked and strained.

B Foods to be avoided as causing irritation because they increase motility, stimulate the gastric juice contain undigested fiber or tend to form gas

Fruits vegetables and whole grain cereals that contain appreciable amounts of cellulose

Meats containing long fiber

Concentrated sweets which ferment easily and produce gas

Condiments and spices—pepper vinegar, mustard and other sources

Extractives from meat—broths soups and gravies

Very hot or very cold foods especially the latter

Nuts

Tea coffee and cocoa

C Foods for the diet

Milk a bland food without cellulose and with rich contributions for body needs can be used freely in most cases

Meat fish and chicken are valuable for their protein iron and vitamins and should be added to the diet as soon as tolerated the most tender kinds being given first

Eggs are a good source of protein fat phosphorus iron and most of the vitamins

Butter and cream provide fat which carries vitamin A whereas vegetable oils and fats are lacking in the vitamin unless they have been fortified with vitamin A

APPLIED DIETETICS

Laboratory data Routine urine and blood studies as required by a complete medical examination

Basal metabolism test

Other studies to determine the presence of endocrine disturbances

Dietetic treatment Foods to supply the food constituents in amounts to fulfill body needs and attain desired weight The normal requirements for protein, minerals and vitamins should be maintained The caloric value of the intake is reduced so that the body will burn its own adipose tissue The loss of weight after the first weeks should average one to two pounds per week There may be periods of no weight loss due to the maladjustment of the water balance

The food constituents**Carbohydrate**

Amount Decreased

Qualifying factor Sufficient amounts should be given to avoid acidosis

Protein

Amount Normal

Qualifying factor There should be sufficient complete protein

Fat

Amount Decreased

Qualifying factor There should be sufficient amounts of the foods that supply vitamin A

Minerals

Amount Normal

Qualifying factor When amounts supplied by food are insufficient which may occur extremely low caloric diet, medication should be prescribed

Vitamins

Amount Normal

Qualifying factor When amounts supplied by food are insufficient which may occur extremely low caloric diet medication should be prescribed

Foods

Milk and cheese though rich in fat are used because they are high in calcium and phosphorus furnish an excellent quality of protein and the vitamins in varying amounts Skim milk or buttermilk, from which the fat has been removed, may be given and the amount of butter or cream increased proportionately

Lean meat and poultry are good sources of iron thiamine riboflavin and niacin as well as protein and do not add appreciably to the fat content of the diet Lean fish provides a good quality of protein phosphorus and some of the vitamins without adding fat Eggs, although they contain fat, should be used for their valuable contributions of protein iron and vitamins

Butter fortified oleomargarine and cream supply vitamin A and the use of butter in particular is advisable but should be restricted to the amount allowed by the diet Vegetable oils and fats do not carry vitamins

Vegetables and fruits (5 per cent and 10 per cent carbohydrate) should be used freely Their caloric value is low, they provide minerals and vitamins and help to satisfy the appetite

Breads and cereals because of their high carbohydrate content must be carefully prescribed The whole grain or enriched products should be used for their content of minerals and vitamins

Sugar and other concentrated sweets such as jellies, honey and candy should be avoided, as they contain essentially little else than carbohydrate

Tea and coffee (without cream milk or sugar) have no food value and fat free broth has very little

Meals

The number of meals may conform to the usual daily routine of the patient but the amount of food eaten must be kept within the limits of the food prescription Intermediate feedings if taken should consist of foods with little or no food value, any other food taken must be counted as a part of the food prescription

Environmental factors that influence the effectiveness of the diet

- Good habits of personal hygiene—physical and mental, should be established
- Exercise beyond the usual amount should be directed by the physician
- The patient should be cautioned concerning the danger of patent reducing machines and medicines
- Glandular medication should be taken only under the supervision of the physician
- If the patient has been on a normal diet there will be no increase in the cost of the obesity diet but if his diet has been inadequate—consisting largely of concentrated carbohydrate foods with little fruits or vegetables—the addition of these will increase the cost

Education of the patient

- Pictures and charts should be used to help the patient to contrast his overweight with the normal weight for his height and age and to realize the excess amount he is carrying. He should be shown with graph or picture that the prognosis for health and longevity is less favorable for the obese individual and that reduction in weight would promote health as well as comfort and appearance
- He should understand that his intake of foods supplying fuel should be in accordance with the demands of his activity—that his obesity is due primarily to the intake of larger amounts of fuel foods than his activity requires—the excess being stored in his body as fat. He should see then that the purpose of his diet is to limit the food intake—in particular with respect to foods of high fuel value, so that he will use his body fat as well as his food intake to supply his energy requirement
- He should be cautioned that with any reduction in food intake the diet must provide protein, vitamins and minerals in amounts adequate for growth and health
- The fuel value of some of the common foods should be demonstrated to him—especially those of concentrated carbohydrate
- He should be helped to vary his diet through a knowledge of equivalents—always keeping within the limits of the diet
- His understanding of the theory of his diet and his experience in carrying the plan to a successful issue should enable him always to maintain a proper balance between his food intake and his energy requirements

Abnormal conditions and diseases that may be found in association with obesity

- Avitaminosis
- Cardiovascular diseases
- Constipation
- Diabetes
- Gall bladder disturbances
- Hypertrophic arthritis
- Psychoneuroses

DIABETES**DIETARY OUTLINE****Body part affected** Islands of Langerhans of the pancreas

Physiology Secretion of a hormone—insulin—which bears an important relationship to the metabolism of glucose and fat. Evidence that the secretions of the endocrine glands—particularly the pituitary and the adrenals—and possibly the thyroid—balance the action of insulin in the metabolism of glucose

Pathological physiology Deficiency of insulin secretion by the Islands of Langerhans, causing a deficient glycogen storage and deficient glucose oxidation and utilization. Derangement of the balance between insulin and the secretions of the endocrine glands which tends to produce an abnormal blood sugar. Inheritance of the disease

Laboratory data Routine urine and blood studies as required by a complete medical examination

Special laboratory tests for diagnosis and treatment

Urine analysis

- Specific gravity—usually high
- Sugar—present in varying amounts
- Diacetic acid or acetone bodies—denoting acidosis when present
- Albumin—present in renal involvement
- Examination of sediment

Blood sugar—higher than normal

Test taken fasting or at a specified time after meal

Test for glucose tolerance used to diagnose borderline or mild cases

Blood Cholesterol

Usually higher than normal when disease is not under control, or when there are associated diseases involving the metabolism of fat

Dietetic treatment For the adult, foods to supply the food constituents in amounts adequate to fulfill body needs and maintain desired weight. It is advisable that the diabetic patient maintain his normal weight or even remain slightly below normal. When the caloric value of the intake is kept below the normal over a period of time, and the basal metabolic rate lowered thereby, the body's food requirement will be decreased. The amounts of the food constituents, carbohydrate, protein and fat, in the diet are determined by the different theories of diet therapy held by various authorities. For the child, a normal diet to maintain desired weight and growth and sufficient insulin to utilize this diet.

The food constituents

Carbohydrate

Amount Decreased

Qualifying factor When carbohydrate sufficient to help to maintain the desired weight is not tolerated, medication, insulin, is prescribed

Concentrated sweets are not given, their content of carbohydrate being too readily available, flooding the blood stream with glucose which overflows into the urine

Protein

Amount Normal

Qualifying factor Some physicians increase the protein above the normal

Fat

Amount Normal—low or high depending on the practice of the physician

Qualifying factor Some authorities believe that there is a relation between the amount of cholesterol in the blood and the metabolism of glucose therefore they decrease the fat content of the diet in order to decrease the cholesterol in the blood

Minerals

Amount Normal

Qualifying factor If food does not meet the requirements, medication should be given

Vitamins

Amount Normal

Qualifying factor If food does not meet the requirements, medication should be given

Diet for Children

For normal growth and development, children require a normal diet with sufficient insulin to utilize it. Concentrated sweets such as candy and sugar are not given, their content of carbohydrate being too readily available, flooding the blood stream with glucose which overflows into the urine

Foods

Milk or cheese should be included in the various types of diabetic diets for their calcium content. While milk is an excellent source of protein and fat, it must be kept in mind that it is comparatively high in carbohydrate. It is a good source of phosphorus and vitamins. Cottage cheese or skimmed milk may be used to decrease the fat, or whole milk if the fat is kept within the limits of the diet.

Meat, fish, poultry and eggs add to the protein of the diet and to the mineral and vitamin content in varying amounts. If legumes are used their high carbohydrate content must be considered.

Butter, fortified oleomargarine and cream provide vitamin A as well as fat while the vegetable oils are lacking in this vitamin. If vegetable oils are used care must be taken to make adequate provision of the vitamin.

Vegetables and fruits (5 per cent and 10 per cent carbohydrate) provide varying amounts of carbohydrate add to the mineral and vitamin content of the diet and help to satisfy the appetite by giving a feeling of fullness. 15 per cent and 20 per cent vegetables may be given with discretion but their use limits the amounts of vegetables of lower carbohydrate content. The potato can be used interchangeably with bread or cereal for carbohydrate.

Enriched and whole grain bread and cereal are valuable for their mineral and vitamin content but should not be given in amounts to cause the carbohydrate to exceed the requirement. The diabetic diet of today is liberal enough to obviate the need of "diabetic foods" such as special bread substitutes.

Concentrated sweets such as desserts are excluded from the diet. Ice cream may be given occasionally, but its food value must be estimated and included in the food prescription.

Meals

The number of meals may conform to the usual daily routine provided the food eaten is within the limits of the food prescription. When insulin is taken provision should be made for food before bed time to avoid a possible reaction.

Environmental factors that influence the effectiveness of the diet

Good habits of personal hygiene are important. It is essential to guard against infection, and for this reason to give proper care to the feet and teeth and to have prompt treatment for colds and all skin lesions.

Education of the patient

The patient should have an understanding of the pathology of his condition and learn how he can cooperate to the fullest extent in treatment. Whenever possible he should be given printed material to help him to carry out the treatment at home. He should be shown the sizes and amounts of the servings of foods allowed him so that he can follow his diet without finding it necessary to weigh his food. His knowledge of food equivalents should enable him to vary his diet and in case of acute illness to change it to a soft or liquid consistency.

As a check on his diet he should know how to test his urine and to record the results. He should be able to administer insulin to himself and in order to safeguard daily treatment another member of the family should be taught the procedure. The patient should be able to recognize the symptoms of an insulin reaction and to know the treatment for it. He should be given an identification card.

He should understand the importance of a careful hygienic regime both physical and mental and the necessity of reporting colds and infections promptly to the physician.

Abnormal conditions and disease that may be found in association with diabetes

- Cardiovascular diseases
- Gall bladder diseases
- Gout
- Liver disorders
- Obesity often a precursor to diabetes
- Tuberculosis
- Underweight

LIVER DISORDER

DIETARY OUTLINE

Body part affected The liver

Physiology Intermediary metabolism—storage, disintegration, transformation and redistribution—of the various food constituents as follows:

Carbohydrate Storage of glycogen in the liver and formation of glucose for the demands of the body—regulating the amount of glucose that passes into the blood stream.

Protein Deamination of amino acids with formation of ammonium carbonate—the precursor of urea—synthesis of urea—detoxification of harmful end products of protein which enter the blood stream and are excreted by the kidneys. Storage of protein in the liver.

Fat Deposition of fat in relation to the amount of glycogen present in the liver. Disintegration of fat in connection with carbohydrate metabolism.

Minerals Storage and metabolism of minerals particularly of iron.

Vitamins Concerned with the absorption, storage and utilization of the various vitamins. Carotene is absorbed in the presence of bile and is converted into vitamin A in the liver.

Formation and secretion of bile which facilitates the digestion and absorption of fat and the absorption of carotene in the body, removes waste material from the liver and acts as a regu-

lator of intestinal putrefaction The principal constituents of bile are mucin, bile salts, lipoids (cholesterol, lecithin and other phospholipins) and bile pigments (bilirubin and biliverdin)

Secretion into the bile of the products of the disintegration of the hemoglobin (bilirubin)

Detoxification of harmful products, due to ingestion of toxic substances and noxious products of putrefaction and metabolism

Production of prothrombin

Pathological physiology Disturbance of one or several of the above functions as a result of degenerative and inflammatory changes in the cells, alterations in the circulatory system, infections (chronic and acute), toxic processes, disorders affected by diseases of the biliary tract and tumors, benign and malignant (See abnormal conditions and diseases that may be found in association with liver disorders) In generalized liver damage, vitamin A storage in the liver is reduced The deficiency is due to biliary obstruction and failure of absorption of vitamin A or failure of conversion of carotene into vitamin A resulting from liver function impairment Thiamine may not be utilized in severe liver damage of alcoholic cirrhosis Liver cirrhosis may be helped by a high protein diet with generous supply of the vitamin B complex according to some authorities There seems to be a hemorrhagic tendency in patients with liver disease which may be characteristic of ascorbic acid deficiency

Laboratory data Routine urine and blood studies as required in a complete medical examination "There is no one test available that will measure all the manifold functions of the liver" The following are special laboratory tests to determine the particular functions of the liver that are impaired

Galactose tolerance test to indicate the ability of the liver to build glycogen

Determination of the urea in the blood, which defines the condition of the liver and its relation to protein metabolism

Hippuric acid test to determine the detoxifying activity of the liver

Bromsulphalein test to determine the liver's ability to push out abnormal substances

Prothrombin test for indicating hemorrhagic condition of the liver

Determination of cholesterol and cholesterol esters to establish the ratio between them as indicative of the liver disorder

Tests for the concentration of bile pigments and their derivatives

Numerous other tests for proof of the secretory functions of the liver cells

Dietetic treatment Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain the desired weight The type and extent of the impairment of the liver function give direction for the amounts and kinds of food constituents to be used The diet should be bland, non-irritating and non-stimulating

A high carbohydrate intake has a prophylactic as well as a therapeutic value

According to recent clinical research a normal protein is given and even an increase above the normal according to some authorities as it is found that the protein protects the liver

Other authorities still restrict protein in liver disorders The only types of animal protein allowed in these disorders are those obtained from the dairy products and in hypercholesterolemia only foods from vegetable sources are permitted by some authorities (no milk is allowed)

The fat is usually decreased to low normal in chronic conditions In acute disorders, also in impaired functions of the liver that affect the bile and in liver disturbances affected by or due to disease of the biliary tract, the fat is drastically reduced In hypercholesterolemia some authorities reduce the fat and use only vegetable sources

The vitamins seem to have a protective action for the liver Therefore additional vitamins, especially thiamine, riboflavin and niacin are given to prevent liver cell damage, to compensate for any loss due to decreased absorption, and for the maintenance of normal liver structure and function

The food constituents

A. Acute Liver Disorder

Carbohydrate

Amounts Increased to approximately 50 per cent above the normal

Qualifying factors Carbohydrate in the diet must usually be increased by sugar concentrates such as dextrose and lactose

Protein

Amount Normal

Qualifying factor Authorities who prescribe low protein usually restrict animal protein

Fat

Amount Decreased to 50 per cent below the normal

Qualifying factors Animal fat (dairy products) is restricted by certain authorities to 50 per cent of the total intake of fat

Minerals

Amount Normal

Qualifying factor If amounts supplied by food are inadequate, medication should be prescribed by the physician

Vitamins

Amount Increased amounts particularly of vitamin A thiamine, riboflavin and niacin

Qualifying factor Medication will be necessary to supplement the diet

Fluids

Amount Normal

B Chronic Liver Disorder*Carbohydrate*

Amount Increased to approximately 50 per cent above the normal

Qualifying factor Sugar concentrates dextrose and lactose, may be used to increase the carbohydrate

Protein

Amount Normal or increased

Qualifying factor Authorities who prescribe a lower protein usually restrict animal protein

Fat

Amount Decreased

Qualifying factor Animal fat (dairy products) is restricted by certain authorities to 50 per cent of the total intake of fat

Minerals

Amount Normal

Qualifying factor If amounts supplied by food are inadequate medication should be prescribed by the physician. In ascites certain authorities restrict salt

Vitamins

Amount Increased amounts particularly of vitamin A thiamine riboflavin and niacin

Qualifying factor Medication will be necessary to supplement the diet

Fluids

Amount Normal

Qualifying factor In ascites the fluid is restricted

C Hypercholesterolemia (Diet by certain authorities)*Carbohydrate*

Amount Increased to approximately 50 per cent above the normal

Qualifying factor The carbohydrate must be obtained from vegetable sources only Sugar concentrates dextrose and lactose may be used to increase the carbohydrate

Protein

Amount Low normal

Qualifying factor Vegetable sources only are used (no milk)

*Fat*Amount Decreased— $\frac{1}{2}$ gram per kilogram

Qualifying factor Vegetable sources only are used The sterols of plants are not absorbed and so are not estimated for their cholesterol content

Minerals

Amount Normal

Qualifying factor On this restricted diet the amounts supplied by the foods are inadequate, and medication, especially calcium, should be prescribed by the physician

Vitamins

Amount Increased

Qualifying factor On this restricted diet the amounts of the vitamins are inadequate and medication should be prescribed by the physician

Fluids

Amount Normal

Foods

Milk is used in the diet only when food from animal sources is permitted. Since at least one half pint (1 cup) of milk daily is necessary even to approximate the calcium requirement without using medication, when milk is restricted entirely as in hypercholesterolemia, calcium medication must be prescribed. Moreover, in such conditions foods must be chosen carefully to provide vitamins in adequate amounts. In addition to protein and calcium, milk supplies some fat and is a good source of phosphorus and vitamins.

If skimmed milk is used in place of whole milk, the fat may be replaced by butter or cream. Meat, fish and poultry are given as in the normal diet unless the protein prescribed is low.

Butter or cream (animal fat) is limited to a greater degree in acute conditions. Vegetable fats—such as corn, cotton seed and olive oils, and oleomargarine and hydrogenated fats manufactured from them—are allowed.

Vegetables are given in large amounts for their carbohydrate, mineral and vitamin content. Seed vegetables and the potato make valuable contributions to the protein of the diet, when animal protein is limited or entirely restricted. When a gastrointestinal disturbance is associated with the liver disorder the vegetables given should be of kinds that are easily digested and low in residue (See Peptic Ulcer, p. 178).

Fruits are given in restricted amounts in diets for acute and chronic disorders and in hypercholesterolemia. They furnish minerals, vitamins and carbohydrate. Fruit juices reinforced by sugar concentrates such as dextrose and lactose may be used for nourishment between meals. They prevent the feeling of hunger which is the usual result of diets when restricted in protein or fat and obviate the necessity of taking abnormal amounts of carbohydrate at meal times.

Breads and cereals increase the vitamin and mineral content of the diet, as well as the carbohydrate. Their content of protein is the only factor that limits their use when protein is restricted.

Sugars and sweets may be given in as large amounts as the patient can tolerate. Such sweets as candies, jellies and marmalades are pleasing forms with which to increase the carbohydrate content of the diet. Dextrose and lactose are used in the preparation of foods to help further to fulfill the high requirements of this food constituent.

Coffee and tea should be used in great moderation and alcohol is not permitted.

Meals

The diet may follow the patient's customary routine. However, feedings between meals are usually given again to help fulfill the high carbohydrate requirement.

Environmental conditions

Good habits of hygiene, physical and mental, are essential.

Education of the patient

A diagram may be shown the patient with which to explain the digestive processes and how the products of digestion are carried to the liver where they are stored and made ready for use by the body tissues or sent to other organs to be disposed of as waste. Such a diagram will help the patient to realize that every kind of food ingested demands activity on the part of the liver. The patient should understand how his diet will help to compensate for his particular liver disorder and further, will protect the liver and keep it in as satisfactory condition as possible. He should be impressed with the importance of keeping within the limits of his diet and of avoiding forbidden foods and overindulgence in protein and fat.

Abnormal conditions and diseases that may be found in association with liver disorders

Anemias
 Ascites
 Avitaminosis
 Biliary tract diseases
 Cholecystitis
 Constipation
 Febrile diseases
 Gastrointestinal disturbances
 Infections
 Menstruation
 Nephritis
 Obesity
 Pregnancy
 Underweight

KETOGENIC DIET**USED IN CERTAIN TYPES OF EPILEPSY**

Body part affected Symptoms are being treated not a disease

Physiology Not known

Pathological physiology Pathological changes in the central nervous system

Functional instability of the nerve cells

Disturbance somewhere in the extracerebral metabolism as in respiration or digestion

Disturbance of the water metabolism with a positive water balance causing a cerebral hydated state

Laboratory data Routine urine and blood studies as required in a complete medical examination

Neurological examination to rule out birth injury

Blood and spinal fluid examinations to rule out syphilis

Determination of blood calcium and phosphorus and muscle irritability to rule out tetany

Radiographs to rule out brain injury trauma or increased pressure A repetition of these, as a later examination may often reveal a disturbance which did not appear at first

Frequent urine analyses when patient is under treatment to determine whether there is a negative nitrogen balance or ratio and to see if a ketosis has developed

Dietetic Treatment Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain the desired weight The carbohydrate must be reduced and the fat increased until a ratio is established that will maintain the body in a state of ketosis (Table 55)

In the dehydration diet the fluid intake is reduced until a balance is obtained between the intake and the output

The food constituents

Carbohydrate

Amount Decreased to lowest amount possible

Qualifying factor Through a greatly decreased carbohydrate, the fat is incompletely oxidized producing a ketosis

Protein

Amount Adult—low normal $\frac{1}{2}$ gram per kilogram average weight

Child 1 gram per kilogram average weight

Qualifying factor Sufficient amounts of complete protein should be provided

Fat

Amount Increased

Qualifying factor The fat should be in excess of the amount that can be completely oxidized

Minerals

Amount Normal

Qualifying factor If sufficient amounts are not provided by food medication must be prescribed

Vitamins

Amount Normal

Qualifying factor If sufficient amounts are not provided by food, medication must be prescribed

Fluid

Amount Ketogenic Diet Normal

Dehydration Diet Decreased to 600 cc in 24 hours

Foods

Milk cannot be used because of the amount of carbohydrate that it contains. The calcium content of the diet, therefore, is inadequate. Cream is used for its high fat and low carbohydrate content and it contributes some calcium. Cheese also supplies calcium, and contains very little or no carbohydrate. However, it is usually necessary to prescribe calcium medication, particularly for children.

Meat fish, chicken and eggs may be given, but since the protein is usually kept at low normal the amounts used must be small. This affects the content of iron and phosphorus in the diet, and to some extent the vitamin content.

Butter or fortified oleomargarine is given liberally, which ensures sufficient amounts of vitamin A. Oils are sometimes given to help supplement the fat content of the diet but vegetable oils supply no vitamins.

Vegetables and fruits averaging 5 per cent to 10 per cent carbohydrate, are used, but cannot be given in liberal amounts since the carbohydrate content of the diet must be kept extremely low. This affects the mineral and vitamin content of the diet materially, and medication may be necessary to supplement the food.

Breads and cereals are usually eliminated because of their high carbohydrate content. The exclusion of the whole grain or enriched bread and cereal decreases the mineral and vitamin content of the diet.

No sugar or sweets of any kind are allowed since carbohydrate is so drastically restricted. Saccharine which has no food value is used to sweeten prepared foods such as custards and very sour fruits such as rhubarb. The elimination of sugar and sweets is also favorable in the dry diet as they increase thirst and favor water storage. This is also true of salt.

Agar and well washed bran may be used to replace the bulk usually supplied by fruits, vegetables and whole grain cereals. They help to give a feeling of fullness or satisfaction and to keep the patient from breaking his diet. Agar may be combined with the fruit juice allowed and served with cream as a dessert. Well washed bran may be used with cream, as a cereal, or may be made into wafers.

If fluids are not restricted clear broth may be given which helps to give a feeling of satisfaction.

Meals

Meals may follow the established routine of the patient provided that the food eaten is within the limits of the food prescription. However, the amounts prescribed for each meal must be definitely followed.

Environmental factors that influence the effectiveness of the diet

Good habits of personal hygiene both physical and mental should be established and the daily routine carefully followed. Medication should be taken only under the direction of the physician.

Education of the patient

The patient should understand that his diet establishes a very delicate balance between carbohydrate and fat. It is explained that because of the low carbohydrate the fat will be only partially burned and its products will appear in the urine. He should understand that the purpose of his diet is to produce this condition that the intake of even a very small amount of carbohydrate beyond that which the diet allows would defeat this purpose and that he must therefore adhere closely to his diet.

He should learn how to test his urine and should understand that the test is a check on the effectiveness of the diet.

The sizes of servings of food allowed should be demonstrated to ensure correctness of amounts in a diet so limited and the scales should be used when exact measurements are required.

The patient should be given printed directions to help him to carry out his diet at home with recipes (including recipes for fillers such as agar jelly and bran wafers) and lists of equivalents to enable him to vary his diet by using different foods. Gauss suggests that in the dry diet thirst may be alleviated by the use of hot, stringent gargles, chewing gum, chewing of bitters such as orange peel or the slow sipping of grapefruit juice.

The patient should take frequent rest periods. He should avoid emotional stress, and should be encouraged and helped not to be conscious of his condition but to lead as nearly as possible a normal life with pleasurable activity.

When the child is the patient the mother should understand the treatment and help to make environmental conditions favorable to good mental and physical hygiene.

Abnormal conditions and diseases that may be found in association with epilepsy

Constipation

In the treatment of psychosis, migraine and acute chorea, the ketogenic diet is also used by some authorities.

NEPHRITIS

DIETARY OUTLINE

Body part affected The kidneys

Physiology Excretion of the end products of protein metabolism

Pathological physiology Due to altered kidney function, the end products of protein metabolism are not excreted as well as normally, and in the terminal stages may even accumulate in the body. There is a depletion of the alkaline reserve of the body in order to compensate for the failure of the kidney to maintain the proper acid base balance.

Laboratory data Routine urine and blood studies as required in a complete medical examination

Urine analysis

Volume—variable but greater increase above normal shown at night than during the day

Reaction—increased acidity

Albumin—none to large amounts

Specific gravity—variable, diminished with decreased renal function

Microscopic examination—cells, casts or bacteria may be present

Phenol sulphophthalein test—to show impairment of kidney function

Urea or other clearance tests—to show degree of renal impairment

Blood

Retention of end products of protein metabolism shown by increased non protein nitrogen and urea

Chlorides—increased in some types of nephritis

Total protein

Hemoglobin

Dietetic Treatment Foods to supply the food constituents in amounts adequate to fulfill body needs. The protein content of the diet depends upon the type of nephritis and the treatment of edema when present is according to the theory held by the physician.

The food constituents

A. Acute Nephritis

Carbohydrate

Amount Normal or increased

Qualifying factor Liberal amounts should be given as it spares the body protein more effectively than fat

Protein

Amount Low, normal or decreased

Qualifying factor Many physicians restrict animal protein to a minimum and some omit it from the diet entirely

Fat

Amount Normal

Qualifying factor Liberal amounts should be given to spare body protein and to help to meet body needs

Minerals

Amount Normal

Vitamins

Amount Normal

Fluids

Amount Restricted

Qualifying factor Amount is dependent upon previous day's output of urine

B Chronic Nephritis*Carbohydrate*

Amount Normal

Protein

Amount Normal

Fat

Amount Normal

Minerals

Amount Normal

Vitamins

Amount Normal

Fluids

Amount Increased

Qualifying factor Controlled by output of urine

C Nephritis of the Nephrotic Type*Carbohydrate*

Amount Normal

Protein

Amount High normal or increased

Qualifying factor To compensate for the loss of protein

Fat

Amount Decreased

Qualifying factor A low fat diet is thought by some to effect a reduction in the blood cholesterol, if that is high

Minerals

Amount Normal

Qualifying factor In the presence of edema some authorities recommend administration of acid salts, together with a neutral diet or one containing a preponderance of acid ash Some authorities restrict sodium chloride

Vitamins

Amount Normal

Fluids

Amount Restricted

Qualifying factor Usually restricted to one quart daily

Foods

Milk At least one half pint daily is necessary even to approximate the calcium requirement without the use of medication When the amount of protein given is decreased to the low level the calcium requirement cannot be fulfilled by milk and medication must be prescribed In addition to protein milk supplies some fat and is a good source of vitamins and phosphorus The cream contains, besides fat, an appreciable amount of protein calcium phosphorus and vitamin A When cream is diluted to the consistency of milk, thereby lowering its content of protein and minerals including sodium chloride, it may be used to advantage when these food constituents are to be decreased

When the amount of meat fish or eggs used is limited because of the restriction in protein care must be taken to fulfill the iron and vitamin requirement Medication may be necessary Meat broths and gravies are omitted as they contain extractives in concentrated form

Butter is a concentrated fat and contributes to the vitamin A content of the diet It does not contain protein in an appreciable amount, whereas cream does

Vegetables, except potatoes and dried legumes contain only small amounts of protein. They are good sources of minerals and vitamins. The soy bean is valuable as a vegetable source of complete protein.

Fruits add minerals and vitamins as well as carbohydrate to the diet but contain only insignificant amounts of protein.

Whole grain or enriched bread and cereals are good sources of minerals and of some of the vitamins but they contain an appreciable amount of protein and thus must be carefully evaluated in the diet especially if the protein is restricted. When supplemented with milk the protein becomes of satisfactory biological value.

Sugar, syrups, cornstarch and tapioca are concentrated carbohydrates without protein. They lack minerals and vitamins.

Coffee, tea and cocoa should be omitted from the diet.

If salt free bread and sweet butter are used and no salt is added in the cooking the diet will contain two grams or less of salt.

Meals

Meals may be taken at habitual times provided that the food intake fulfills the food prescription.

Environmental factors that influence the effectiveness of the diet

Good habits of personal hygiene, both physical and mental are important.

Education of the patient

The patient should have an understanding of the normal functions of the kidneys to be able to recognize the fallacy of some popular beliefs concerning them. He should know that except in the acute stage protein foods are used as in the normal diet and are not harmful or destructive. In particular the misconception concerning "red" meat should be corrected.

The patient should realize that in observing the protective diet he will have an alkaline ash diet. In the use of acid therapy (the neutral diet plus acid salts) the content of acid and alkaline ash forming foods should also be explained.

In edematous conditions the reason for the restriction of sodium chloride should be explained the content and preparation of food should be described and recipes given.

The patient should be given lists of foods to meet the requirement of the diet and again recipes for the preparation of food. The sizes of servings should be given—in particular protein equivalents when the protein content of the diet is increased or decreased.

The patient should understand the importance of guarding against infections and colds.

Abnormal conditions and diseases that may be found in association with nephritis

Anemia

Cardiovascular diseases

Obesity

Petinitis

PREGNANCY

DIETARY OUTLINE

Body part affected Maternal and fetal tissues

Physiology Normal functioning of the maternal organism adjusted to meet the demands of the developing fetus

Contributing factors Increased demand on the maternal metabolism by the presence of the fetus

Laboratory data Routine urine and blood studies as required in a complete medical examination

Routine urine analysis at frequent intervals to determine whether the kidneys function normally and to detect the presence of sugar

Dietetic treatment Foods to supply the food constituents in amounts adequate to fulfill body needs of the mother and the developing fetus and to maintain the desired body weight. It may be necessary to increase the caloric value of the intake after the fourth month. The lack of sufficient calcium, phosphorus and vitamin D may produce rickets in the infant (see Rickets

The food constituents**A Normal***Carbohydrate*

Amount Normal

Qualifying factor Carbohydrate is usually better tolerated than fat

Protein

Amount Normal

Fat

Amount Normal

Minerals

Amount Increased, Calcium—1.5 grams, Phosphorus—2 grams Iron—15 milligrams

Qualifying factor If sufficient amounts are not supplied by food, medication should be prescribed

Vitamins

Amount Increased Vitamin A—6000 I U. Thiamine—1800 micrograms, Riboflavin—2500 micrograms, Niacin—18 milligrams, Ascorbic Acid—100 milligrams, Vitamin D—400–800 I U

Qualifying factor If sufficient amounts are not provided by food, medication should be prescribed

Fluid

Amount Normal, 6 to 8 glasses

B Pernicious vomiting*Carbohydrate*

Amount Increased

Qualifying factor Carbohydrate is usually better tolerated than fat It is desirable that the patient should have a liberal glycogen reserve

Protein

Amount Normal

Fat

Amount Normal or decreased

Qualifying factor Frequently fat is not well tolerated When the carbohydrate is increased the fat may be decreased to keep the calories at the normal requirement

Minerals

Amount Increased Calcium—1.5 grams, Phosphorus—2 grams, Iron—15 milligrams

Qualifying factor If sufficient amounts are not provided by food medication should be prescribed

Vitamins

Amount Increased Vitamin A—6000 I U Thiamine—1800 micrograms Riboflavin—2500 micrograms, Niacin—18 milligrams, Ascorbic Acid—100 milligrams Vitamin D—400–800 I U

Qualifying factor If sufficient amounts are not provided by food, medication should be prescribed

Fluid

Amount Decreased

Qualifying factor Given in smallest possible amounts between feedings Means other than oral are sometimes used to meet the body demands

C With kidney complications*Carbohydrate*

Amount Normal

Qualifying factor Carbohydrate has a protein sparing action

Protein

Amount Low normal

Qualifying factor This decreases the burden on the kidneys

The food constituents**A Normal***Carbohydrate*

Amount Normal

Qualifying factor Carbohydrate is usually better tolerated than fat

Protein

Amount Normal

Fat

Amount Normal

Minerals

Amount Increased, Calcium—1.5 grams, Phosphorus—2 grams, Iron—15 milligrams

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Fluid

Amount Decreased

Qualifying factor Given in smallest possible amounts between feedings Means other than oral are sometimes used to meet the body demands

C With kidney complications*Carbohydrate*

Amount Normal

Qualifying factor Carbohydrate has a protein sparing action

Protein

Amount Low normal

Qualifying factor This decreases the burden on the kidneys

Fat

Amount Normal

Qualifying factor Fat is not so well tolerated as carbohydrate

Minerals

Amount Increased Calcium—15 grams, Phosphorus—2 grams, Iron—15 milligrams

Qualifying factor If sufficient amounts are not provided by food, medication should be prescribed

Vitamins

Amount Increased, Vitamin A—6000 I U Thiamine—1800 micrograms Riboflavin—2.00 micrograms, Niacin—18 milligrams Ascorbic Acid—100 milligrams Vitamin D—400-800 I U

Qualifying factor If sufficient amounts are not provided by food, medication should be prescribed

Fluids

Amount Decreased

Qualifying factor Restricted to the level of the patient's output of urine, especially in edema. Some authorities force fluids

Foods

Milk—One quart daily ensures sufficient calcium and phosphorus. In addition, milk provides a protein of excellent quality and easily utilized carbohydrate and fat and it is a good source of the vitamins. The amount of vitamin D can be greatly increased by various methods. An ounce of American cheese contains approximately the same amount of calcium and phosphorus as one cup of milk. Skimmed milk or buttermilk may be used and additional butter or cream given. If milk is not tolerated calcium medication must be prescribed.

When protein foods which carry iron such as eggs and meat must be restricted because of kidney complications it is difficult to fulfill the iron requirement by food and medication must be prescribed.

Butter fortified oleomargarine and cream contain a liberal amount of vitamin A but their fat content must be evaluated in the fulfillment of the food prescription.

Vegetables and fruits provide minerals and vitamins and carbohydrate in varying amounts. They are valuable also for their laxative properties.

Whole grain and enriched breads and cereals provide carbohydrate as well as minerals and vitamins. When the caloric value of the intake is restricted only moderate amounts of these foods can be used.

Meals

The number of meals may follow the established routine of the patient provided all the foods are used that are required to fulfill the food prescription. In the last two or three months of pregnancy four or five small meals are often more satisfactory in relation to appetite and digestion. In cases of pernicious vomiting six or seven small meals are often better tolerated than three large ones and fluids are omitted or limited at meal time and given in small amounts between meals.

Environmental factors that influence the effectiveness of the diet

Good habits of personal hygiene mental and physical are especially important. Emotional strain should be avoided. Exercise should be taken as directed by the physician.

Education of the patient

The patient should understand the extra demand upon her body for caring for the growth and development of the fetus. She should understand her need for increased amounts of minerals and vitamins over the amounts supplied by the protective diet for normal needs and the adjustment of fuel foods necessary for maintenance of desired weight. She should appreciate the importance of milk as well as vegetables and fruit as carriers of calcium phosphorus and the vitamins and should be given recipes for the use of milk. She should be encouraged to add new foods if needed and given lists of food equivalents for varying the diet always maintaining proper food values.

The food constituents**A Normal***Carbohydrate*

Amount Normal

Qualifying factor Carbohydrate is usually better tolerated than fat

Protein

Amount Normal

Fat

Amount Normal

Minerals

Amount Increased Calcium—1.5 grams, Phosphorus—2 grams Iron—15 milligrams

Qualifying factor If sufficient amounts are not supplied by food, medication should be prescribed

Vitamins

Amount Increased Vitamin A—6000 I U Thiamine—1800 micrograms, Riboflavin—2500 micrograms, Niacin—18 milligrams Ascorbic Acid—100 milligrams Vitamin D—400-800 I U

Qualifying factor If sufficient amounts are not provided by food, medication should be prescribed

Fluid

Amount Normal, 6 to 8 glasses

B Pernicious vomiting*Carbohydrate*

Amount Increased

Qualifying factor Carbohydrate is usually better tolerated than fat It is desirable that the patient should have a liberal glycogen reserve

Protein

Amount Normal

Fat

Amount Normal or decreased

Qualifying factor Frequently fat is not well tolerated When the carbohydrate is increased the fat may be decreased to keep the calories at the normal requirement

Minerals

Amount Increased Calcium—1.5 grams Phosphorus—2 grams Iron—15 milligrams

Qualifying factor If sufficient amounts are not provided by food, medication should be prescribed

Vitamins

Amount Increased Vitamin A—6000 I U Thiamine—1800 micrograms Riboflavin—2500 micrograms, Niacin—18 milligrams Ascorbic Acid—100 milligrams, Vitamin D—400-800 I U

Qualifying factor If sufficient amounts are not provided by food, medication should be prescribed

Fluid

Amount Decreased

Qualifying factor Given in smallest possible amounts between feedings Means other than oral are sometimes used to meet the body demands

C With kidney complications*Carbohydrate*

Amount Normal

Qualifying factor Carbohydrate has a protein sparing action

Protein

Amount Low normal

Qualifying factor This decreases the burden on the kidneys

Fat

Amount Normal

Qualifying factor Fat is not so well tolerated as carbohydrate

Minerals

Amount Increased Calcium—1.5 grams Phosphorus—2 grams Iron—15 milligrams

Qualifying factor If sufficient amounts are not provided by food medication should be prescribed

Vitamins

Amount Increased, Vitamin A—6000 I U, Thiamine—1800 micrograms Riboflavin—2.00 micrograms Niacin—18 milligrams, Ascorbic Acid—100 milligrams Vitamin D—400-800 I U

Qualifying factor If sufficient amounts are not provided by food, medication should be prescribed

Fluids

Amount Decreased

Qualifying factor Restricted to the level of the patient's output of urine, especially in edema. Some authorities force fluids

ods

Milk—One quart daily ensures sufficient calcium and phosphorus. In addition milk provides a protein of excellent quality and easily utilized carbohydrate and fat and it is a good source of the vitamins. The amount of vitamin D can be greatly increased by various methods. An ounce of American cheese contains approximately the same amount of calcium and phosphorus as one cup of milk. Skimmed milk or buttermilk may be used, and additional butter or cream given. If milk is not tolerated calcium medication must be prescribed.

When protein foods which carry iron such as eggs and meat must be restricted because of kidney complications it is difficult to fulfill the iron requirement by food and medication must be prescribed.

Butter fortified oleomargarine and cream contain a liberal amount of vitamin A, but their fat content must be evaluated in the fulfillment of the food prescription.

Vegetables and fruits provide minerals and vitamins and carbohydrate in varying amounts. They are valuable also for their laxative properties.

Whole grain and enriched breads and cereals provide carbohydrate as well as minerals and vitamins. When the caloric value of the intake is restricted only moderate amounts of these foods can be used.

als

The number of meals may follow the established routine of the patient provided all the foods are used that are required to fulfill the food prescription. In the last two or three months of pregnancy four or five small meals are often more satisfactory in relation to appetite and digestion. In cases of pernicious vomiting six or seven small meals are often better tolerated than three large ones and fluids are omitted or limited at meal time and given in small amounts between meals.

Environmental factors that influence the effectiveness of the diet

Good habits of personal hygiene mental and physical are especially important. Emotional strain should be avoided. Exercise should be taken as directed by the physician.

Education of the patient

The patient should understand the extra demand upon her body for caring for the growth and development of the fetus. She should understand her need for increased amounts of minerals and vitamins over the amounts supplied by the protective diet for normal needs and the adjustment of fuel foods necessary for maintenance of desired weight.

She should appreciate the importance of milk as well as vegetables and fruit as carriers of calcium phosphorus and the vitamins and should be given recipes for the use of milk. She should be encouraged to add new foods if needed and given lists of food equivalents for varying the diet always maintaining proper food values.

The food constituents

A Normal

Carbohydrate

Amount Normal

Qualifying factor Carbohydrate is usually better tolerated than fat

Protein

Amount Normal

Fat

Amount Normal

Minerals

Amount Increased, Calcium—1.5 grams, Phosphorus—2 grams, Iron—15 milligrams

Qualifying factor If sufficient amounts are not supplied by food, medication should be prescribed

Vitamins

Amount Increased, Vitamin A—6000 I U; Thiamine—1800 micrograms, Riboflavin—2500 micrograms, Niacin—18 milligrams, Ascorbic Acid—100 milligrams, Vitamin D—400-800 I U

Qualifying factor If sufficient amounts are not provided by food, medication should be prescribed

Fluid

Amount Normal, 6 to 8 glasses

B Pernicious vomiting

Carbohydrate

Amount Increased

Qualifying factor Carbohydrate is usually better tolerated than fat It is desirable that the patient should have a liberal glycogen reserve

Protein

Amount Normal

Fat

Amount Normal or decreased

Qualifying factor Frequently fat is not well tolerated When the carbohydrate is increased the fat may be decreased to keep the calories at the normal requirement

Minerals

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Qualifying factor If sufficient amounts are not provided by food, medication should be prescribed

Vitamins

Amount Increased, Vitamin A—6000 I U; Thiamine—1800 micrograms, Riboflavin—2500 micrograms, Niacin—18 milligrams, Ascorbic Acid—100 milligrams, Vitamin D—400-800 I U

Qualifying factor If sufficient amounts are not provided by food medication should be prescribed

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Fat

Amount Normal

Qualifying factor Fat is not so well tolerated as carbohydrate

Minerals

Amount Increased Calcium—1.5 grams Phosphorus—2 grams Iron—15 milligrams

Qualifying factor If sufficient amounts are not provided by food medication should be prescribed

Vitamins

Amount Increased Vitamin A—6000 I U Thiamine—1800 micrograms Riboflavin—2.00 micrograms Nicotin—18 milligrams Ascorbic Acid—100 milligrams Vitamin D—400-500 I U

Qualifying factor If sufficient amounts are not provided by food, medication should be prescribed

Fluids

Amount Decreased

Qualifying factor Restricted to the level of the patient's output of urine especially in edema Some authorities force fluids

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Milk—One quart daily ensures sufficient calcium and phosphorus. In addition, milk provides a protein of excellent quality and easily utilized carbohydrate and fat and it is a good source of the vitamins. The amount of vitamin D can be greatly increased by various methods. An ounce of American cheese contains approximately the same amount of calcium and phosphorus as one cup of milk. Skimmed milk or buttermilk may be used and additional butter or cream given. If milk is not tolerated calcium medication must be prescribed.

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Whole grain and enriched breads and cereals provide carbohydrate as well as minerals and vitamins. When the caloric value of the intake is restricted only moderate amounts of these foods can be used.

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The number of meals may follow the established routine of the patient provided all the foods are used that are required to fulfill the food prescription. In the last two or three months of pregnancy four or five small meals are often more satisfactory in relation to appetite and digestion. In cases of pernicious vomiting six or seven small meals are often better tolerated than three large ones and fluids are omitted or limited at meal time and given in small amounts between meals.

Environmental factors that influence the effectiveness of the diet

Good habits of personal hygiene mental and physical are especially important. Emotional strain should be avoided. Exercise should be taken as directed by the physician.

Education of the patient

The patient should understand the extra demand upon her body for caring for the growth and development of the fetus. She should understand her need for increased amounts of minerals and vitamins over the amounts supplied by the protective diet for normal needs and the adjustment of fuel foods necessary for maintenance of desired weight.

She should appreciate the importance of milk as well as vegetables and fruit as carriers of calcium phosphorus and the vitamins and should be given recipes for the use of milk. She should be encouraged to add new foods if needed and given lists of food equivalents for varying the diet always maintaining proper food values.

The food constituents**A Normal***Carbohydrate*

Amount Normal

Qualifying factor Carbohydrate is usually better tolerated than fat

Protein

Amount Normal

Fat

Amount Normal

Minerals

Amount Increased, Calcium—1.5 grams, Phosphorus—2 grams, Iron—15 milligrams

Qualifying factor If sufficient amounts are not supplied by food, medication should be prescribed

Vitamins

Amount Increased, Vitamin A—6000 I U Thiamine—1800 micrograms, Riboflavin—2500 micrograms, Niacin—18 milligrams, Ascorbic Acid—100 milligrams, Vitamin D—400–800 I U

Qualifying factor If sufficient amounts are not provided by food, medication should be prescribed

Fluid

Amount Normal, 6 to 8 glasses

B Pernicious vomiting*Carbohydrate*

Amount Increased

Qualifying factor Carbohydrate is usually better tolerated than fat. It is desirable that the patient should have a liberal glycogen reserve

Protein

Amount Normal

Fat

Amount Normal or decreased

Qualifying factor Frequently fat is not well tolerated. When the carbohydrate is increased the fat may be decreased to keep the calories at the normal requirement

Minerals

Amount Increased, Calcium—1.5 grams, Phosphorus—2 grams, Iron—15 milligrams

Qualifying factor If sufficient amounts are not provided by food medication should be prescribed

Vitamins

Amount Increased Vitamin A—6000 I U, Thiamine—1800 micrograms, Riboflavin—2500 micrograms, Niacin—18 milligrams, Ascorbic Acid—100 milligrams, Vitamin D—400–800 I U

Qualifying factor If sufficient amounts are not provided by food medication should be prescribed

Fluid

Amount Decreased

Qualifying factor Given in smallest possible amounts between feedings. Means other than oral are sometimes used to meet the body demands

C With kidney complications*Carbohydrate*

Amount Normal

Qualifying factor Carbohydrate has a protein sparing action

Protein

Amount Low normal

Qualifying factor This decreases the burden on the kidneys

Fat

Amount Normal

Qualifying factor Fat is not so well tolerated as carbohydrate

Minerals

Amount Increased Calcium—15 grams, Phosphorus—2 grams, Iron—15 milligrams

Qualifying factor If sufficient amounts are not provided by food, medication should be prescribed

Vitamins

Amount Increased, Vitamin A—6000 I U Thiamine—1800 micrograms, Riboflavin—200 micrograms Niacin—18 milligrams Ascorbic Acid—100 milligrams Vitamin D—400-800 I U

Qualifying factor If sufficient amounts are not provided by food, medication should be prescribed

Fluids

Amount Decreased

Qualifying factor Restricted to the level of the patient's output of urine especially in edema Some authorities force fluids

Milk—One quart daily ensures sufficient calcium and phosphorus. In addition, milk provides a protein of excellent quality and easily utilized carbohydrate and fat and it is a good source of the vitamins. The amount of vitamin D can be greatly increased by various methods. An ounce of American cheese contains approximately the same amount of calcium and phosphorus as one cup of milk. Skimmed milk or buttermilk may be used, and additional butter or cream given. If milk is not tolerated, calcium medication must be prescribed.

When protein foods which carry iron, such as eggs and meat, must be restricted because of kidney complications, it is difficult to fulfill the iron requirement by food and medication must be prescribed.

Butter, fortified oleomargarine, and cream contain a liberal amount of vitamin A, but their fat content must be evaluated in the fulfillment of the food prescription.

Vegetables and fruits provide minerals and vitamins and carbohydrate in varying amounts. They are valuable also for their laxative properties.

Whole grain and enriched breads and cereals provide carbohydrate as well as minerals and vitamins. When the caloric value of the intake is restricted, only moderate amounts of these foods can be used.

The number of meals may follow the established routine of the patient provided all the foods are used that are required to fulfill the food prescription. In the last two or three months of pregnancy, four or five small meals are often more satisfactory in relation to appetite and digestion. In cases of pernicious vomiting, six or seven small meals are often better tolerated than three large ones, and fluids are omitted or limited at meal time and given in small amounts between meals.

Environmental factors that influence the effectiveness of the diet

Good habits of personal hygiene, mental and physical, are especially important. Emotional strain should be avoided. Exercise should be taken as directed by the physician.

Education of the patient

The patient should understand the extra demand upon her body for caring for the growth and development of the fetus. She should understand her need for increased amounts of minerals and vitamins over the amounts supplied by the protective diet for normal needs and the adjustment of fuel foods necessary for maintenance of desired weight. She should appreciate the importance of milk, as well as vegetables and fruit, as carriers of calcium, phosphorus and the vitamins, and should be given recipes for the use of milk. She should be encouraged to add new foods, if needed, and given lists of food equivalents for varying the diet, always maintaining proper food values.

She should realize that her diet is a protection to her own health, as well as to that of the fetus and that it helps her to maintain proper weight and safeguards her from conditions of obesity, dental decay, constipation, acidosis and anemia

She should appreciate the importance of a careful hygienic regime, mental and physical, and the saving of mental and physical strain to be gained by conserving time and energy

Abnormal conditions and diseases that may be found in association with pregnancy

Acidosis
Anemia
Avitaminosis
Constipation
Dental caries
Glycosuria
Hypertension
Iodine deficiency
Kidney disturbances
Obesity
Underweight

VITAMIN A DEFICIENCY

DIETARY OUTLINE

Body part affected Entire body in terms of growth Eyes, Skin Mucous membrane of gastro intestinal and respiratory tracts, Teeth and bones, Questionable relation to organs of reproduction and lactation

Physiology Essential for growth and health at all ages Maintains healthful condition of the skin and the mucous membrane of the gastro intestinal and respiratory tracts and thus makes them more resistant to disease Acts with calcium to build teeth Promotes normal vision, especially important for vision in dim light as it helps to restore the visual purple which is a compound of vitamin A and a protein Most of the vitamin is stored in the liver The change from carotene to vitamin A takes place in the liver

Pathological physiology Mild deficiency—Retarded growth in children, Listlessness, Lowered resistance to infection especially of the mucous membranes, Increased incidence of respiratory infection Inflammation and infection of gastro intestinal tract, Dryness and scaliness of the skin Night blindness

Extreme deficiency—Ophthalmia (xerophthalmia conjunctivitis, keratomalacia), Urinary and gall bladder calculi are still questionable, Sterility

Contributing factors Faulty food habits
Reduction in food intake due to self directed or prescribed dietary restrictions when not supplemented by medication
Impairment of appetite
Food idiosyncrasies
Inadequate income
Lack of knowledge concerning the value of vitamin A
Insufficient availability of food containing vitamin A
Destruction of the vitamin by oxidation and prolonged heat in preparation and storage
Certain factors affecting the absorption such as an excess of mineral oil, chronic diarrhea pancreatic dysfunction, celiac disease or sprue
Lack of certain amount of fat which prevents the absorption
Diseases of any part of the gastro intestinal tract
Incapacity of the liver to convert carotene into vitamin A
Chronic infections

Laboratory data Dark adaptation test

Biomicroscopic examination of conjunctivae under slit lamp illumination
Blood test for determination of the amount of vitamin A and carotene

Test for Diagnosis Diagnosis is aided by a knowledge of the diet, clinical response to vitamin A, and close clinical observation

Dietetic treatment A normal diet includes the amount of vitamin A needed as recommended by the National Research Council Committee on Food and Nutrition and is also sufficient in all the other food constituents. However, when there are symptoms of vitamin A deficiency the amount should be increased by food through careful selection of foods high in vitamin A content. If the deficiency is extreme, the diet cannot supply sufficient amounts and it will need to be supplemented by medication. In dietetic treatment the conservation of vitamin A in food preparation and storage must be given consideration as the loss is affected by oxidation and prolonged heat.

The food constituents

Carbohydrate

Amount Normal

Qualifying factor Limit carbohydrate foods low in vitamin content so that sufficient foods containing vitamin A can be used

Protein

Amount Normal

Fat

Qualifying factor Special attention should be given to choosing fats that carry vitamin A

Minerals

Amount Normal

Vitamins

Amount Increase of vitamin A Normal amount of other vitamins and an increase of the amount if other conditions require it

Qualifying factor If sufficient amounts of vitamin A are not provided by food medication should be prescribed

Foods

Milk and cheese that have the fat retained should be given in liberal amounts for their valuable contribution of vitamin A. Skim milk and cottage cheese made from skim milk due to their lack of fat have no vitamin A content.

Eggs should be used in any form for the vitamin A content of the yolks.

Glandular organs are high in vitamin A content. Muscle meats contain insignificant amounts of the vitamin.

Fish liver oils furnish vitamin A in liberal amounts and for this reason are used in medication. Labels on the containers should be consulted for the vitamin A content.

Butter should be used liberally in the diet as it is an excellent source of vitamin A. Its content of vitamin A varies in different seasons according to the feed of the animal. Oleomargarine that has been fortified with sufficient amounts of vitamin A may be used in place of butter. Vegetable oils and fats if not fortified are poor sources of the vitamin.

Vegetables, particularly the green leafy and yellow vegetables should be used liberally as they are with certain exceptions good sources of carotene the precursor of vitamin A. In conditions where the fat must be lowered lessening the vitamin A content the vegetable sources of vitamin A may be used toward the required allowance.

Fruits Fresh yellow fruit such as cantaloup and peaches and the dried apricots and prunes contain valuable amounts of vitamin A. Care should be taken in the preparation of fruits and vegetables that the vitamin is not lost.

Cereal grains and nuts are poor sources of vitamin A.

Meals

Meals may be adjusted to the established routine of the patient, or adjusted to the prescription of the doctor if related diseases exist but must provide all the vitamins necessary to fulfill the food prescription.

Environmental factors that influence the effectiveness of the diet

Good habits of hygiene are important.

Knowledge and consideration of food values helps to prevent the deficiency.

The vitamin A content of the diet may be affected by various social factors including nationality, income, food outside the home, preparation and choice of food, availability of food and mental attitude concerning food.

Education of the patient

The patient should be taught the food values of the foods and particularly the good sources of vitamin A, the purpose of vitamin A in the body, and the amount needed

The patient should know how to plan the food for the day and the methods of buying, preparing and serving the foods to best retain the vitamin

The patient should know the food value of equivalents so that he can substitute one food for another

Attention should be called to the danger of extreme reduction of fats from the diet in an effort to lose weight

The importance of reading labels should be shown, to learn the amount of the vitamin present in foods, such as oleomargarine that has been fortified with vitamin A

Abnormal conditions and diseases that may be found in association with Vitamin A deficiency

Chronic diarrhea

Chronic infections

Constipation

Diseases of the liver

Diseases of the respiratory tract

Gastro intestinal disorders

Obesity

Other avitaminoses

Underweight

THIAMINE DEFICIENCY**DIETARY OUTLINE**

Body part affected Entire body in terms of growth and carbohydrate metabolism The gastro intestinal tract, Muscles The nervous system The heart, Organs of reproduction and lactation

Physiology Part of a co enzyme system, Essential to the metabolism of carbohydrates Essential to the proper nutrition and function of the nervous and muscular systems contributing to good muscle tone Maintains and stimulates the appetite, Aids the regular bowel movement, Essential for growth reproduction and lactation

Pathological physiology Mild deficiency—Muscular weakness, Ease of fatigue, Vague generalized aches and pains Loss of weight, Disturbances of the central nervous system—fretfulness, irritability, Peripheral neuritis, Digestive disturbances—indigestion, constipation Loss of appetite, Faulty carbohydrate metabolism which produces toxicity, Circulatory disturbances

Extreme deficiency—Beri beri Polyneuritis with edema Wasting, Impaired lactation, Mental changes, Sterility is still questionable

Contributing factors Faulty food habits
Reduction in food intake due to voluntary or prescribed dietary restrictions when not supplemented by medication
Impairment of appetite
Food idiosyncrasies
Inadequate income
Lack of knowledge concerning the value of thiamine
Destruction of the vitamin through improper preparation of food
Need for daily intake as thiamine is not stored in the body
Interference with absorption due to excessive use of alcohol or alkali or to such conditions as diarrhea
High carbohydrate in the diet increasing the need of thiamine
Extensive use of refined foods that have not been enriched with thiamine

Laboratory data Estimation of thiamine in the urine by biological or chemical methods
Measurement of intermediate products of carbohydrate metabolism in blood

Test for diagnosis Diagnosis is aided by knowledge of the diet and close clinical observation

Dietetic treatment A normal diet includes the amount of thiamine needed as recommended by the National Research Council Committee on Food and Nutrition as well as sufficient of all the other food constituents. However, when there are symptoms of thiamine deficiency the amount should be increased through careful selection of foods high in thiamine content. If the deficiency is extreme and the diet cannot supply sufficient amounts it will need to be supplemented by medication. In dietetic treatment the conservation of thiamine in food preparation must be given careful consideration in view of the ease with which thiamine is affected by heat, oxygen, solubility in water and alkalinity.

The food constituents

Carbohydrate

Amount Normal

Qualifying factor Limit carbohydrate foods low in thiamine content so that sufficient foods containing thiamine can be used

Protein

Amount Normal

Fat

Amount Normal

Minerals

Amount Normal

Vitamins

Amount Increase of thiamine; Normal amount of other vitamins, and an increase of the amount if other conditions require it particularly of the vitamins that are included in the 'B' complex

Qualifying factor If sufficient amounts of thiamine are not provided by food medication should be prescribed

Foods

Milk should be given as in the normal diet for its important contribution to the total thiamine requirement. Other dairy products—cheese and eggs—contain thiamine in moderate amounts, but as they are commonly used they aid in meeting the requirement.

Meat and especially lean pork, heart, liver and kidney contribute relatively important amounts of thiamine to the diet.

Fruits particularly the orange and banana should be used for their thiamine content.

Vegetables particularly the leafy vegetables are good sources of thiamine. The legumes including lentils, dried peas, beans and soy beans are outstanding sources of the vitamin.

Breads and cereals which are whole grain or enriched with thiamine should be used in the diet.

Nuts and peanut butter are also good sources of thiamine.

Meals

Meals may be adjusted to the established routine of the patient, or adjusted to the prescription of the doctor if related diseases exist, but must provide all the vitamins necessary to fulfill the food prescription.

Environmental factors that influence the effectiveness of the diet

Good habits of hygiene are important.

Knowledge and consideration of food values help to prevent the deficiency.

The thiamine content of the diet may be affected by nationality, income, food outside the home, organization of meal time, preparation and choice of food, availability of food and mental attitude concerning food.

Education of the patient

The patient should be taught the food values of the foods and particularly the good sources of thiamine, the purpose of thiamine in the body and the amount of thiamine needed particularly in view of the relative difficulty in obtaining a diet adequate in thiamine.

The patient should know how to plan the food for the day and the methods of buying, preparing and serving the foods to best retain the vitamin.

The patient should know the food value of equivalents so that he can substitute one food for another. This is especially important in thiamine as there is no one food to ensure the daily requirement, such as is true of some other vitamins.

Attention should be called to the importance of reading labels to know the amount in foods as well as in vitamin concentrates

The patient should be acquainted with the value of enriched breads and cereals

Abnormal conditions and diseases that may be found in association with thiamine deficiency

Anorexia due to physical condition

Chronic alcoholism

Chronic debilitating diseases

Diabetes

Febrile diseases

Gastro intestinal diseases

Hyperthyroidism

Other avitaminoses

Pernicious vomiting of pregnancy

Psychoneuroses

RIBOFLAVIN DEFICIENCY

DIETARY OUTLINE

Body part affected Entire body in terms of growth Body cells, Skin, Eyes Tongue

Physiology Promotes growth, Helps to keep the skin healthy, Essential for transportation of oxygen to the cells Helps eyesight, Concerned with carbohydrate metabolism, Exerts sparing action on thiamine, Part of one of the essential enzyme systems

Pathological physiology Burning and itching sensations of eyes Microscopic changes in eye as seen with slit lamp, Lesions of mucous membranes and skin Inflammation of lips, Fissures at the corner of the mouth (cheilosis), Smoothness of tongue Nervous depression, General weakness and lowering of body tone Diminished luster and loss of hair, Increased susceptibility to certain infections Expectancy of life shortened Digestive disturbances Anorexia Retardation of growth, Loss of weight

Contributing factors Faulty food habits

Reduction in food intake due to self directed or prescribed dietary restrictions when not supplemented by medication

Impairment of appetite

Food idiosyncrasies

Inadequate income

Lack of knowledge concerning the value of riboflavin

Destruction of the vitamin, as it deteriorates when exposed to sunlight

Loss of the vitamin due to solubility in water

Faulty absorption or utilization of food due to disorders of gastro intestinal tract or chronic alcoholic addiction

Increased requirement during periods of rapid growth in children during pregnancy and lactation hyperthyroidism and fevers which increase the metabolic needs

Test for diagnosis Diagnosis depends upon recognition of characteristic lesions and symptoms and is aided by a knowledge of the diet

Dietetic treatment A normal diet includes the amount of riboflavin needed as recommended by the National Research Council Committee on Food and Nutrition and is also sufficient in all the other food constituents However, when there are symptoms of riboflavin deficiency the amount should be increased by careful selection of foods high in riboflavin content If the deficiency is extreme the diet cannot supply sufficient amounts and it will need to be supplemented by medication In dietetic treatment the conservation of riboflavin in food preparation must be given consideration as the loss is affected by solubility in water and exposure to sunlight

The food constituents

Carbohydrate

Amount Normal

Protein

Amount Normal

- Fat**
Amount Normal
- Minerals**
Amount Normal
- Vitamins**
Amount Increase of riboflavin Normal amount of other vitamins and an increase in amount if other conditions require it particularly an increase of the vitamins that are included in the 'B complex
- Qualifying factor If sufficient amounts of riboflavin are not provided by food medication should be prescribed

Foods

- Milk should always be included in the diet as the recommended riboflavin cannot be met by food without the amount of milk prescribed in the normal diet Cheese and eggs also give valuable contributions to the riboflavin content of the diet
- Meat that is lean and particularly liver is an important source of riboflavin
- Fruits that are dried are fair sources of riboflavin but fruits should be given as in the normal diet for their contribution of other food constituents
- Vegetable particularly the green leafy and seed vegetables are valuable sources of riboflavin
- Breads and cereal which are whole grain should be used in the diet At present only some breads and cereals are enriched with riboflavin

Meals

- Meal may be adjusted to the established routine of the patient, or adjusted to the prescription of the doctor if related diseases exist but must provide all the vitamins necessary to fulfill the food prescription

Environmental factors that influence the effectiveness of the diet

- Good habits of hygiene are important
- Knowledge and consideration of food values help to prevent the deficiency
- The riboflavin content of the diet may be affected by various social factors including nationality income food outside the home organization of meal time, preparation and choice of food availability of food and mental attitude concerning food

Education of the patient

- The patient should be taught the food values of the foods and particularly the good sources of riboflavin the purpose of riboflavin in the body and the amount of riboflavin needed
- The patient should know how to plan the food for the day and the methods of buying preparing and serving the foods to best retain the vitamin
- The patient should know the food value of equivalents so that he can substitute one food for another
- Attention should be called to the importance of reading labels to know the amount of the vitamin in foods as well as in vitamin concentrates

Abnormal conditions and diseases that may be found in association with riboflavin deficiency

- Anemias
Night blindness
Other avitaminoses
Pellagra

NIACIN DEFICIENCY**DIETARY OUTLINE**

- Body part affected** Skin Gastro intestinal tract Mucous membrane, Nervous system Other body cells
- Physiology** Necessary to keep tissues normal and healthy through normal cell metabolism Part of one of the essential enzyme systems
- Pathological physiology** Mild deficiency—Loss of appetite, Loss of weight General muscular weakness Irritability Depression, Memory loss Headache Insomnia Dermatitis Soreness and burning of mouth and tongue Functional disorders of the gastro intestinal tract, including indigestion and diarrhea
- Extreme deficiency**—Pellagra

Attention should be called to the importance of reading labels to know the amount in foods as well as in vitamin concentrates

The patient should be acquainted with the value of enriched breads and cereals

Abnormal conditions and diseases that may be found in association with thiamine deficiency

Anorexia due to physical condition

Chronic alcoholism

Chronic debilitating diseases

Diabetes

Febrile diseases

Gastro intestinal diseases

Hyperthyroidism

Other avitaminoses

Pernicious vomiting of pregnancy

Psychoneuroses

RIBOFLAVIN DEFICIENCY

DIETARY OUTLINE

Body part affected Entire body in terms of growth, Body cells, Skin, Eyes Tongue

Physiology Promotes growth, Helps to keep the skin healthy Essential for transportation of oxygen to the cells, Helps eyesight, Concerned with carbohydrate metabolism, Exerts sparing action on thiamine, Part of one of the essential enzyme systems

Pathological physiology Burning and itching sensations of eyes Microscopic changes in eye as seen with slit lamp, Lesions of mucous membranes and skin, Inflammation of lips, Fissures at the corner of the mouth (cheilosis), Smoothness of tongue Nervous depression General weakness and lowering of body tone Diminished luster and loss of hair, Increased susceptibility to certain infections Expectancy of life shortened Digestive disturbances Anorexia, Retardation of growth, Loss of weight

Contributing factors Faulty food habits
Reduction in food intake due to self directed or prescribed dietary restrictions when not supplemented by medication
Impairment of appetite
Food idiosyncrasies
Inadequate income
Lack of knowledge concerning the value of riboflavin
Destruction of the vitamin, as it deteriorates when exposed to sunlight
Loss of the vitamin due to solubility in water
Faulty absorption or utilization of food due to disorders of gastro intestinal tract or chronic alcoholic addiction
Increased requirement during periods of rapid growth in children during pregnancy and lactation, hyperthyroidism and fevers which increase the metabolic needs

Test for diagnosis Diagnosis depends upon recognition of characteristic lesions and symptoms and is aided by a knowledge of the diet

Dietetic treatment A normal diet includes the amount of riboflavin needed as recommended by the National Research Council Committee on Food and Nutrition and is also sufficient in all the other food constituents However when there are symptoms of riboflavin deficiency the amount should be increased by careful selection of foods high in riboflavin content If the deficiency is extreme the diet cannot supply sufficient amounts and it will need to be supplemented by medication In dietetic treatment the conservation of riboflavin in food preparation must be given consideration as the loss is affected by solubility in water and exposure to sunlight

The food constituents

Carbohydrate

Amount Normal

Protein

Amount Normal

Fat

Amount Normal

Minerals

Amount Normal

Vitamin

Amount Increase of riboflavin Normal amount of other vitamins and an increase in amount if other conditions require it particularly an increase of the vitamins that are included in the 'B' complex

Qualifying factor If sufficient amounts of riboflavin are not provided by food, medication should be prescribed

Foods

Milk should always be included in the diet as the recommended riboflavin cannot be met by food without the amount of milk prescribed in the normal diet. Cheese and eggs also give valuable contributions to the riboflavin content of the diet

Meat that is lean and particularly liver is an important source of riboflavin

Fruits that are dried are fair sources of riboflavin but fruits should be given as in the normal diet for their contribution of other food constituents

Vegetables particularly the green leafy and seed vegetables are valuable sources of riboflavin

Breads and cereals which are whole grain should be used in the diet At present only some breads and cereals are enriched with riboflavin

Meals

Meals may be adjusted to the established routine of the patient, or adjusted to the prescription of the doctor if related diseases exist but must provide all the vitamins necessary to fulfill the food prescription

Environmental factors that influence the effectiveness of the diet

Good habits of hygiene are important

Knowledge and consideration of food values help to prevent the deficiency

The riboflavin content of the diet may be affected by various social factors including nationality, income food outside the home organization of meal time, preparation and choice of food availability of food and mental attitude concerning food

Education of the patient

The patient should be taught the food values of the foods and particularly the good sources of riboflavin the purpose of riboflavin in the body and the amount of riboflavin needed

The patient should know how to plan the food for the day and the methods of buying preparing and serving the foods to best retain the vitamin

The patient should know the food value of equivalents so that he can substitute one food for another

Attention should be called to the importance of reading labels to know the amount of the vitamin in foods as well as in vitamin concentrates

Abnormal conditions and diseases that may be found in association with riboflavin deficiency

Anemias

Night blindness

Other avitaminoses

Pellagra

NIACIN DEFICIENCY**DIETARY OUTLINE**

Body part affected Skin Gastro intestinal tract Mucous membrane Nervous system, Other body cells

Physiology Necessary to keep tissues normal and healthy through normal cell metabolism Part of one of the essential enzyme systems

Pathological physiology Mild deficiency—Loss of appetite Loss of weight General muscular weakness, Irritability Depression Memory loss Headache Insomnia Dermatitis Soreness and burning of mouth and tongue Functional disorders of the gastro intestinal tract including indigestion and diarrhea

Extreme deficiency—Pellagra

Contributing factors Faulty food habits
 Reduction in food intake due to self directed or prescribed dietary restrictions when not supplemented by medication
 Impairment of appetite
 Food idiosyncrasies
 Inadequate income
 Lack of knowledge concerning the value of niacin
 Insufficient availability of food containing niacin
 Destruction of niacin through improper preparation of food
 Diseases of the gastro intestinal tract
 Alcoholism

Test for diagnosis Knowledge of the diet necessary for diagnosis Results of therapeutic trial helpful

Dietetic treatment A normal diet includes the amount of niacin needed as recommended by the National Research Council Committee on Food and Nutrition and is also sufficient in all the other food constituents. However, when there are symptoms of niacin deficiency the amount should be increased through careful selection of foods high in niacin content. If the deficiency is extreme the diet cannot supply sufficient amounts and it will need to be supplemented by medication. In dietetic treatment the conservation of niacin in food preparation must be given consideration as the loss is affected by solubility in water.

The food constituents

Carbohydrate

Amount Normal

Protein

Amount Normal

Fat

Amount Normal

Minerals

Amount Normal

Vitamins

Amount Increase of niacin; Normal amount of other vitamins and an increase in amount if other conditions require it, particularly an increase of the vitamins that are included in the B complex"

Qualifying factor If sufficient amounts of niacin are not provided by food, medication should be prescribed

Foods

Milk, cheese and eggs should be included as in the normal diet, although of slight value to the niacin content of the diet

Meat and chicken are good sources of niacin. Liver and salmon are particularly high in the vitamin

Fruits are negligible sources of niacin but should be included in the diet for their contribution of other vitamins and minerals

Vegetables, particularly the green leafy vegetables, dried beans, lentils and soy beans are valuable sources of niacin

Breads and cereals that are whole grain or enriched are good sources of niacin. Yeast furnishes niacin in such liberal amounts that it is often used as medication

Peanuts and peanut butter contain niacin in significant amounts

Meals

Meals may be adjusted to the established routine of the patient or adjusted to the prescription of the doctor if related diseases exist but must provide all the vitamins necessary to fulfill the food prescription

Environmental factors that influence the effectiveness of the diet

Good habits of hygiene are important

Knowledge and consideration of food values help to prevent the deficiency

The niacin content of the diet may be affected by nationality income food outside the home organization of meal time, preparation and choice of food, availability of food and mental attitude concerning food

Education of the patient

The patient should be taught the food values of the foods and particularly the good sources of niacin the purpose of niacin in the body and the amount of niacin needed

The patient should know how to plan the food for the day and the methods of buying preparing and serving the foods to best retain the vitamin

The patient should know the food value of equivalents so that he can substitute one food for another

Attention should be called to the importance of reading labels to know the amount in foods as well as in vitamin concentrates

The patient should be acquainted with the value of enriched breads and cereals

Abnormal conditions and diseases that may be found in association with niacin deficiency

Anemia

Chronic alcoholism

Chronic diarrhea

Mental disorders

Other avitaminoses (particularly thiamine and riboflavin)

Skin infections

Stomatitis

Ulcerative colitis

ASCORBIC ACID DEFICIENCY**DIETARY OUTLINE**

Body part affected Teeth and bones Gums Connective tissue Capillaries Entire body in terms of growth

Physiology Helps to build and maintain the strength of the walls of the capillaries Essential for normal development and nutrition of bones teeth and gums Essential for normal growth Essential for maintaining integrity of connective tissue

Pathological physiology Mild deficiency—Irritability Loss of appetite Failure of wound healing Indolent ulcers Vague digestive disorders Lack of stamina Low erred resistance to infections Retarded growth Various pathological conditions involving tissue metabolism Decalcification of bones and teeth Lesions of gums Development of so called rheumatism Damage to heart muscle Degeneration of muscle structure (diminished muscular power) Latent scurvy, Injury to sex organs Hemorrhages anywhere in the body

Extreme deficiency—Scurvy

Contributing factors Faulty food habits
Food idiosyncrasies
Inadequate income
Sensitivity to certain foods which may contribute to an inadequate ascorbic acid intake
Insufficient availability of food containing ascorbic acid
Loss of the vitamin in preparation as it is destroyed by oxidation heat alkalinity solubility and improper methods of storage and handling
Increased metabolism (such as infections and fevers) which increases the need of the vitamin
Relatively small store of ascorbic acid maintained in the body

Laboratory data Determination of ascorbic acid excretion in urine

Determination of ascorbic acid concentration in blood

Load or saturation test

Capillary resistance test

Test for diagnosis Radiographic studies , Diagnosis is aided by a knowledge of the diet and close clinical observation

Egg yolk is of protective value in rickets in that it is a source of vitamin D as well as of calcium and phosphorus. It is also rich in iron. The white of the egg contains only protein and has no antirachitic value.

Butter, an excellent source of vitamin A, has only a slight vitamin D content. Fish liver oils are excellent sources of vitamin D, but vegetable oils, unless irradiated, do not contain it.

Vegetables and fruits supply minerals and vitamins but are poor sources of vitamin D.

Whole grain or enriched cereals add to the mineral content of the diet. Some authorities consider that when cereals are given in too large amounts they disturb the normal metabolism of calcium.

Sweets may have a place in the diet but should not be allowed to displace foods containing essential food constituents.

Meals

Meals may follow the routine to which the patient is accustomed provided all the food necessary to fulfill the food prescription is taken. With younger children it may be desirable to give several small meals rather than three large ones.

Environmental factors that influence the effectiveness of the diet

Good habits of personal hygiene should be established.

Sufficient sunlight shining directly on the bare skin of the infant and growing child, is an important factor in the prevention and treatment of rickets. Sun bathing is as beneficial on the city roof as at the beach. During the winter the sun bath can be given indoors at an open window. The child's clothing and covering are important considerations, as the ultraviolet ray does not penetrate many kinds of material.²

Education of the patient

The mother should be aware of the factors that are the primary causes of rickets. She should appreciate the importance to childhood of giving these careful consideration and be helped so far as possible to obviate them.

She should know what the ultra violet rays of sunlight are and their value to the body, and how to adapt clothing, and housing and climatic conditions to secure their beneficial effects. She should understand the interrelationship of calcium, phosphorus and vitamin D in the development of the skeletal structure and the importance of milk as a carrier of these food constituents. She should be informed concerning the vitamin D value of fish liver oils and of irradiated foods, especially milk, as substitutes for sunlight or to supplement it. Her understanding of these considerations should help her to appreciate the protection against rickets afforded by the protective diet with the addition of sunlight and other sources of vitamin D.

Abnormal conditions and diseases that may be found in association with rickets

Anemia

Avitaminosis

Increased susceptibility to pneumonia and other infections in infants as reported by some authorities

Malnutrition

Organic or functional disturbances in adult life especially pelvic and oral bone malformation

Retarded dentition

Tetany

² Definite directions for sun baths are given by the Children's Bureau U. S. Department of Labor, Folder No. 5, 1931.

PART IV

TYPICAL DIETS AND MENUS

FOREWORD

In this part a series of typical diets, both normal and therapeutic, primarily for the use of the ambulatory patient, is arranged in the order followed in the Dietary Outlines (Part III). The therapeutic diets are seen to be a modification of the normal diet, constructed on the basis summarized in Part I, Chapter 3, p. 29. Throughout these diets, the figures for body weight and the daily food requirements of the body are those stated in the "Summary of Body Requirements in Terms of Food Constituents" (Part I, Chapter 1, p. 5). When any of the therapeutic diets are inadequate in minerals or vitamins, medication must be prescribed.

The same foods are listed under each therapeutic diet. They are the foods used in the normal diet computed in Part I, Chapter 2, p. 13 to p. 16, to fulfill the food prescription given in Part I, Chapter 1, p. 5. Any change required in them to meet the needs of the various diseases can be easily observed. In this way

again, necessary modifications from the normal diet are emphasized. This presentation will also show how the foods of the family meal can be utilized with few changes or modifications.

It should be understood that these diets are *suggestive and not arbitrary*. They can be varied in many ways with the help of the tables of equivalents (Tables 21-45) and the table of racial foods and food habits (Table 4).

Opposite the page of each diet will be found a meal plan and menus based on the computation of the typical diet. *These again are not an arbitrary arrangement, but are to suggest* how the foods required in the diet can be prepared and utilized in meals, in various combinations. The heavy meal for children is planned for noon time. The menus are arranged on the basis of two levels of cost,—moderate and liberal.

At the end of this part the data contained in the diets and menus are summarized.

NORMAL
TYPICAL DIET
(ADULT)
Average Body Weight, 70 Kgm

Food	Household Measure	Grams	Grams					Milli-grams	I U		Micrograms			Milligrams	
			Carb-ohy- drate	Pro- tein	Fat	Cal- cium	Phos- pho- rus	Iron	Vita- min A	Thia- mine	Ribo- flavin	Nia- cin	Ascor- bic Acid		
Milk	2 c	490	24	16	19	0 566	0 446	1	900	2 0	1045	0 44	6		
Cheese	2 T	30	1	7	10	0 279	0 210	0 3	450	7	185	0 06			
Egg	One	50		7	5	0 0 7	0 112	1 8	500	75	125	0 03			
Meat fish or poultry	4 oz	120		20	7 6	0 012	0 200	2 6		180	240	9 44			
Cream light	1 c	120	6	4	24	0 11	0 066	0 2	1415	40	200				
Butter	6 t	30			24	0 004	0 004		510						
Margarine	3 t	15	0 5		11	0 000	0 003	0 1	30	4	10				
Fruit															
10 per cent—orange	1 m	100	11	1		0 014	0 018	0 4	275	110	50	0 00	64		
15 per cent—apple	1 m	150	41	1	1	0 011	0 018	0 3	105	60	45	0 75	9		
0 per cent—banana	1 m	50	12	0 8		0 004	0 014	0 3	1 3	20	38	0 31	8		
Vegetables															
5 per cent—tomato	1 m	100	4	1	0 5	0 007	0 001	0 8	1000	75	45	0 58	20		
5 per cent—string beans	1 a d	100	7 5	2 5		0 065	0 044	1 4	1000	75	110	0 64	25		
5 per cent—lettuce	3 lbs	30	1	0 5		0 023	0 009		1500	23	45		6		
10 per cent—carrots	1 a d	100	0 5	1	0 5	0 045	0 041	0 6	6000	100	60	1 47	4		
Potato	1 L	200	35	4		0 020	0 114	2 6	80	100	60	2 36	20		
Bread white enriched	3 sl	90	43	7 5	1 5	0 060	0 090	0 9		195	155	0 81			
whole wheat	2 sl	60	30	6	1	0 050	0 090	1 2	190	105	1 24				
Flour	1 T	7	5	0 5		0 001	0 007	0 1		0 6	15	0 00			
Crackers	2	8	6	1	1	0 002	0 000	0 2							
Cereals															
Oats rolled cooked	1 a d	160	18	5	2	0 010	0 120	1 5		210	65	0 40			
Macaroni cooked	1 c	150	20	4	0 5	0 006	0 044	0 4		15		0 11			
Sugar	9 t	45	45												
Jelly	8 t	40	30												
Desserts															
Cake plain	2 cu		25	3	4	0 015	0 030	0 3	154	60	80	0 20			
Gelatin	1 T	3		2											
Beverages															
Bouillon	1 c	240		6											
Totals of the Food Constituents			365 5	80 5	131	1 338	1 49	17	14 350	1936	2 05	19 15	150		

Total Calories 3039

**NORMAL
TYPICAL DIET
(ADULT)
Meals for the Day**

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit Cereal Milk Cream Sugar Egg (bacon if desired) Bread or toast Butter Jelly Beverage Cream Sugar	Orange 1 Rolled oats 1 sauce dish Milk $\frac{1}{2}$ cup Sugar 3 teaspoons 1 egg soft cooked 1 Toast enriched 2 slices Butter 1 teaspoon Jelly 2 tablespoons Coffee Cream 2 tablespoons Sugar 2 teaspoons	Orange juice 1 orange Shredded wheat 1 biscuit Strawberries 10 Cream, 4 tablespoons Egg poached 1 Muffins, 3 small Butter, 1 teaspoon Marmalade, 2 tablespoons Coffee Cream 2 tablespoons Sugar 2 teaspoons
Noon	Main dish Cereal or potato Cheese egg or milk Vegetables cooked or in salad Bread Butter Dessert Fruit pudding or cake Beverage	Macaroni and cheese Macaroni $\frac{1}{2}$ cup Cheese 2 tablespoons Milk $\frac{1}{2}$ cup Flour 1 tablespoon Butter 1 teaspoon Tomato and lettuce salad Tomato 1 Lettuce 3 leaves Mayonnaise 1 tablespoon Bread whole wheat 2 slices Butter 1 teaspoon Baked apple with cream Apple 1 medium Sugar 2 teaspoons Cream 2 tablespoons Milk 1 glass	Creamed chicken and mush rooms in macaroni ring Macaroni $\frac{1}{2}$ cup Chicken diced $\frac{1}{2}$ cup Mushrooms, diced, 2 table spoons Milk $\frac{1}{2}$ cup Flour 1 tablespoon Butter 1 teaspoon Stuffed tomato salad Tomato, 1 Lettuce 3 leaves Celery chopped 2 table spoons French dressing 1 table spoon Rolls 2 Butter 1 teaspoon Apple Snow Apple 2 tablespoons Egg white $\frac{1}{2}$ Sugar 2 teaspoons Milk 1 glass
Night	Soup Crackers Meat fish or poultry Potato or cereal Vegetables cooked or in salad Bread Butter Dessert Fruit cake pudding pastry or gelatin Beverage	Bouillon Crackers 2 Roast beef Baked potato 1 large Butter 1 teaspoon String beans buttered, 1 sauce dish Carrots buttered 1 sauce dish Butter for vegetables 1 teaspoon Bread 1 slice Butter 1 teaspoon Fruit gelatin with cream Banana $\frac{1}{2}$ medium Gelatin $\frac{1}{2}$ tablespoon Sugar 2 teaspoons Cream 2 tablespoons Cake plain 1 piece Coffee Cream, 2 tablespoons Sugar 2 teaspoons	Consomme Crackers 3 Planked sirloin steak Parsley potato balls Potato 1 large Parsley chopped 1 tea spoon Butter 1 teaspoon Carrots glazed Carrots 1 sauce dish Sugar 1 teaspoon Butter, 1 teaspoon Hearts of escarole Roquefort cheese dressing 1 tablespoon Roll 1 Butter 1 teaspoon Milk fruit sherbet 6 heaping tablespoons Fruit juice 4 tablespoons Sugar 2 teaspoons Milk $\frac{1}{2}$ cup Cup cake 1 Coffee Cream 2 tablespoons Sugar 2 teaspoons

NORMAL
TYPICAL DIET
(CHILD)

Male Age, 9 Years Average Body Weight 30 Kgm

Food	Household Measure	Grams	Grams					Milk grams	I U	Micrograms			Miligrams
			Carbobydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk whole	4 c	960	43	3 ³	33	1 13 ³	0 89 ²	2	1344	500	209	0 88	12
Cheese	1 T	15	0 5	3 5	5	0 140	0 105	0 2	2 ² 5	4	83	0 03	
Egg	One	50	7	5	0 027	0 112	1 5	500	75	1 ¹ 5	0 03		
Meat fish or poultry	"oz	55		10	13	0 005	0 100	1 4		20	120	4 7 ²	
Cream													
Butter	3 t	15			12	0 00 ²	0 002		405				
Mayonnaise	1 t	5			4	0 001	0 002		10	1	3		
Fruit													
10 per cent—orange	1 m	100	11	1		0 0 ² 4	0 018	0 4	*5	110	50	0 22	54
15 per cent—apple	1 m	150	21	1	1	0 011	0 018	0 6	105	60	45	0 75	9
*0 per cent—banana	1/2 m	111	12	0 5		0 004	0 014	0 3	175	25	111	0 31	5
Vegetables													
5 per cent—tomato	1 m	100	4	1	0 5	0 007	0 021	0 6	1000	75	45	0 55	2 ²
5 per cent—lettuce	3 lbs	30	1	0 5		0 0 3	0 009		1500	23	45		5
5 per cent—string beans	1 s d	100	7 5	2 5		0 065	0 044	1 4	1000	75	110	0 84	25
10 per cent—carrots	1 s d	100	9 5	1	0 5	0 045	0 041	0 6	6000	100	90	1 47	4
Potato	1 sm	100	19	2		0 011	0 057	1 3	30	100	40	1 18	10
Bread white enriched	3 sl	90	43	7 5	1 5	0 060	0 090	0 9		193	153	0 81	
Flour	1 T	7	5	0 5		0 001	0 007	0 1		25	111	0 09	
Crackers													
Cereals													
Oats rolled cooked	1 s d	190	18	5		0 016	0 126	1 5		219	65	0 40	
Macaroni cooked	1/2 c	75	11	"		0 003	0 0 ² 2	0 2		8		0 06	
Sugar	5 t	25	25										
Jelly	3 t	110	15										
Desserts													
Cake plain	1 1/2 cu		19 5	1 5	3	0 014	0 0 ² 4	0 2	116	47	32	0 15	
Gelatin	1/2 T	3		2									
Beverages													
Totals of the Food Constituents			*75	80 5	11 5	1 59 ²	1 704	13 *	13 133	1736	3177	12 32	146

Total Calories 219

NORMAI
TYPICAL DIET (CHILD)
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morn ing	Fruit Cereal Milk Sugar Egg Bread Butter Milk	Orange, 1 Rolled oats, 1 sauce dish Milk $\frac{1}{2}$ cup Sugar, 1 teaspoon Egg soft boiled 1 Toast 1 slice Butter $\frac{1}{2}$ teaspoon Jelly, 3 teaspoons Milk 1 glass	Orange juice, 1 orange Shredded wheat, 1 biscuit Milk, $\frac{1}{2}$ cup Sugar, 1 teaspoon Strawberries, 10 Bacon, 2 strips Toast 1 slice Butter, $\frac{1}{2}$ teaspoon Jelly 3 teaspoons Milk, 1 glass
Noon :	Meat, fish or poultry Potato or cereal Vegetables Bread Butter Dessert Milk	Roast beef small serving Baked potato 1 small String beans 1 sauce dish Carrots 1 sauce dish Butter $\frac{1}{2}$ teaspoons Bread 1 slice Butter $\frac{1}{2}$ teaspoon Fruit Gelatin Banana $\frac{1}{2}$ medium Gelatin $\frac{1}{2}$ tablespoon Sugar 2 teaspoons Cake, plain 1 small piece Milk $\frac{1}{2}$ cup	Planked sirloin steak small serving Buttered macaroni Macaroni, $\frac{1}{2}$ cup Butter, 1 teaspoon String beans 1 sauce dish Carrots 1 sauce dish Butter $\frac{1}{2}$ teaspoon Bread 1 slice Butter $\frac{1}{2}$ teaspoon Milk fruit sherbet, 4 heaping tablespoons Fruit juice 4 tablespoons Sugar 2 teaspoons Milk $\frac{1}{2}$ cup Cup cake 1 very small Milk 1 cup
Night	Main dish Cereal or potato Cheese, egg or milk Vegetables cooked or in salad Salad dressing Bread Butter Fruit Milk	Macaroni and cheese Macaroni $\frac{1}{2}$ cup Cheese grated, 2 table spoons Milk $\frac{1}{2}$ cup Flour, $\frac{1}{2}$ tablespoon Butter 1 teaspoon Tomato and lettuce salad Tomato 1 medium Lettuce 3 leaves Salad dressing 1 teaspoon Bread 1 slice Butter $\frac{1}{2}$ teaspoon Baked apple Apple 1 medium Sugar, 2 teaspoons Milk, 1 glass	Egg in fluffy potato nest Egg yolk, 1 Egg white 1 beaten Potato 1 small com bined with egg white Stuffed tomato salad Tomato 1 small Lettuce 3 leaves Celery 2 tablespoons Salad dressing 1 teaspoon Roll whole grain 1 Butter $\frac{1}{2}$ teaspoon Apple snow Apple, 2 tablespoons Sugar 2 teaspoons Egg white $\frac{1}{2}$ Milk 1 glass

ALLERGY
TYPICAL DIET
(ADULT)

Average Body Weight 70 Kgm

Food	Household Measure	Grams	Grams					Mili-grams	I.U.	Micrograms		Milligrams		
			Car- bohy- drate	Pro- tein	Fat	Cal- cium	Phos- pho- rus	Iron	Vita- min A	Thia- mine	Ribo- flavin	Nia- cin	Ascor- bic Acid	
* Milk														
Cheese														
Egg														
Meat fish or poultry	6 oz	180		30	39	0 018	0 300	4 2			270	380	14 18	
Cream heavy	½ c	160	5 5	5 5	61 5	0 128	0 10*	0 3	360*	48	2*4			
Butter	6 t	30			24	0 004	0 004		810					
Mayonnaise														
Oil	3 t	15			15									
Fruit														
10 per cent—orange	1 m	100	11	1		0 0*4	0 018	0 4	2 5	110	50	0 2	54	
10 per cent—grapefruit	½ m	100	10	0 5		0 021	0 020	0 3	21	75	60	0 1	40	
15 per cent—apple														
0 per cent—banana	½ m	50	12	0 5		0 004	0 014	0 3	175	22	38	0 31	5	
Vegetables														
5 per cent—tomato	1 m	100	4	1	0 5	0 007	0 021	0 6	1000	75	45	0 58	22	
5 per cent—lettuce	3 lbs	30	1	0 5		0 0*3	0 009		1500	23	45		5	
111 per cent—carrots														
10 per cent—string beans	1 s d	100	7 5	2 5		0 065	0 044	1 4	1000	75	110	0 64	5	
Peas dried	4 T	60	37	16	1	0 046	0 46	3 6	450	316	180	0 60		
Potato white														
Potato sweet	1 m	150	42	3	0 5	0 045	0 078	1 5	5*50	135	113	1 84	20	
Bread whole wheat														
Bread corn pone	6 sm cakes	60	44	5	2	0 010	0 09*	0 6	450	270	78	0 60		
Flour wheat														
Crackers														
Wheat														
Ry Krisps	6	42	30	6		0 0*4	0 163	2 2		138	36	0 86		
Cereals														
Oats rolled cooked	1 s d	180	18	6	2	0 016	0 126	1 5		219	63	0 40		
Macaroni cooked														
Rice brown cooked	1 hp s d	190	23	2 5	0 5	0 0*0	0 101	0 6		68	22	* 07		
Sugar	5 t	25	25											
Jelly	3 t	90	15											
Desserts														
Cake plain														
Gelatin	½ T	2		2										
Beverages														
Bouillon	1 c	240		6										
Totals of the Food Constituents			285	86	146	0 455	1 343	2* 5	11 453	1947	14.3	22 39	181	

Total Calories 2793

Below the normal
Forbidden foods

DIETARY
TYPICAL DIET
(ADULT)
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit Cereal Cream Sugar Bread Butter Beverage Sugar Cream	Orange 1 Rolled oats 1 sauce dish Cream 2 tablespoons Sugar 1 teaspoon Corn pone 2 small cakes Butter 1 teaspoon Coffee 1 cup Sugar 1 teaspoon Cream 2 tablespoons	Rice Krispies 1 sauce dish Cream, 2 tablespoons Sugar 1 teaspoon Strawberries, 10 large Corn pone, 2 small cakes Butter 1 teaspoon Jelly, 2 teaspoons Coffee 1 cup Sugar 1 teaspoon Cream 3 tablespoons
Noon	Soup Vegetable allowed Main dish Fish small portion Vegetable cooked or in salad Bread Butter Dessert Fruit gelatin Beverage Sugar Cream	Pea soup Peas 4 tablespoons Water 1 cup Cream 2 teaspoons Butter 1 teaspoon Salmon loaf Salmon 4 tablespoons Rice 3 tablespoons Cream 1 teaspoon Butter 1 teaspoon Lettuce and tomato salad with dressing Lettuce 1 leaf Tomato 1 medium Oil allowed 1 tablespoon Rice Krisps 4 Butter 1 teaspoon Fruit gelatin with cream Banana $\frac{1}{2}$ medium Gelatin $\frac{1}{2}$ tablespoon Sugar 1 teaspoon Cream 2 teaspoons Tea or coffee 1 cup Sugar 1 teaspoon Cream 2 tablespoons	Cream of pea soup Peas 4 tablespoons Water $\frac{1}{2}$ cup Cream 1 tablespoon Butter, 1 teaspoon Boiled salmon with cream sauce Salmon fresh small portion Cornstarch, $1\frac{1}{2}$ teaspoons Cream, 1 tablespoon Butter 1 teaspoon Stuffed tomato with rice Tomato 1 medium Rice cooked 1 heaping sauce dish Butter 1 teaspoon Rice Krisps 4 Butter 1 teaspoon Fruit mousse Banana $\frac{1}{2}$ medium Gelatin $\frac{1}{2}$ tablespoon Sugar $\frac{1}{2}$ teaspoon Whipped cream 1 table spoon Tea or coffee 1 cup Sugar 1 teaspoon Cream 2 tablespoons
Night	Soup Cracker Main Dish Meat or poultry average portion Potato or cereal Butter Vegetable cooked or in salad Butter Bread Butter Dessert Fruit cake or ices Beverage Sugar Cream	Bouillon Rice Krisp 2 Pot roast Baked sweet potato Butter $\frac{1}{2}$ teaspoon String beans 1 sauce dish Butter $\frac{1}{2}$ teaspoon Grapefruit salad with whipped cream Lettuce 2 leaves Grapefruit sectioned $\frac{1}{2}$ Whipped cream 1 table spoon Corn pone 4 small cakes Butter 1 teaspoon Rice cakes 2 Jelly, 1 tablespoon Tea or coffee Sugar 1 teaspoon Cream 2 tablespoons	Consomme Rice Krisp 2 Roast chicken Candied sweet potato Brown sugar 1 teaspoon Butter, $\frac{1}{2}$ teaspoon String beans 1 sauce dish Butter $\frac{1}{2}$ teaspoon Hearts of lettuce salad with dressing Oil allowed 1 tablespoon Lettuce 3 leaves Corn pone 4 small cakes Butter, 1 teaspoon Orange sherbet Orange juice 1 orange Sugar $\frac{1}{2}$ teaspoon Tea or coffee Sugar 1 teaspoon Cream, 3 tablespoons

ALLERGY
TYPICAL DIET
(CHILD)

Male Age 9 Years Average Body Weight 30 Kgm

Food	Household Measure	Grams	Grams					Milk grams	I U	Micrograms			Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid	
• Milk														
Cheese														
Egg														
Meat fish or poultry	3 oz	90		15	19.5	0.009	0.150	2.1		135	180	7.08		
Cream heavy	½ c	160	5.5	5.5	61.5	0.128	0.101	0.3	3602	48	2.4			
Butter	6 t				4	0.004	0.004		810					
Mayonnaise														
Oil	1 t	5			5									
Fruit														
10 per cent—orange	1 m	100	11	1		0.074	0.018	0.4	225	110	80	0.27	80	
10 per cent—grapefruit	½ m	100	10	0.5		0.071	0.020	0.3	21	75	60	0.21	40	
15 per cent—apple														
20 per cent—banana	½ m	50	12	0.5		0.004	0.014	0.3	175	25	39	0.31	5	
Vegetables														
5 per cent—tomato	1 m	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.89	27	
5 per cent—lettuce	3 lbs	30	1	0.5		0.023	0.009		1500	23	45		8	
10 per cent—carrots														
10 per cent—string beans	1 s d	100	7.5	2.5		0.065	0.044	1.4	1000	45	110	0.64	5	
Peas dried	4 T	50	37	15	1	0.046	0.246	3.6	450	316	180	0.60		
Potato white														
Potato sweet	1 m	150	42	3	0.5	0.045	0.078	1.5	5750	135	113	1.94	80	
Bread whole wheat														
Bread corn pone	6 sm cakes	60	44	5	2	0.010	0.092	0.6	450	270	78	0.60		
Flour wheat														
Crackers														
Ry Krisps														
Wheat														
Cereals														
Oats rolled cooked	1 s d	180	18	5	9	0.016	0.126	1.5		219	65	0.40		
Macaroni cooked														
Rice brown cooked	½ c	190	23	9.5	0.5	0.020	0.101	0.6			24	2.07		
Sugar	5 t	25												
Jelly	3 t	20												
Desserts														
Cake plain														
Gelatin	½ T	3		2										
Beverages														
Cocoa	2 t	6	2	1	1	0.006	0.036	0.2						
Totals of the Food Constituents			257	60	117.5	0.428	1.080	13.4	14,483	1114	1212	1165	181	

Total Calories 236

Below the normal
Forbidden foods

ALLERGY
TYPICAL DIET
(CHILD)
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit Cereal Cream Sugar Bread Butter Beverage Sugar Cream	Orange, 1 Rolled oats 1 sauce dish Cream 2 tablespoons Sugar 1 teaspoon Corn pone 2 small cakes or Ry Krisps 3 Butter 1 teaspoon Cocoa 1 cup Water $\frac{1}{2}$ cup Sugar 1 teaspoon Cream 3 tablespoons Cocoa 1 teaspoon	Cornflakes 1 sauce dish Cream 1 tablespoon Sugar, 1 teaspoon Strawberries 10 large Corn pone 2 small cakes Butter 1 teaspoon Cocoa 1 cup Water, $\frac{1}{2}$ cup Sugar 1 teaspoon Cream 3 tablespoons Cocoa 1 teaspoon
Noon	Main dish Meat fish or poultry average serving Potato or cereal Butter Vegetable cooked or in sauce Bread Butter Dessert Fruit Gelatin	Pot roast Baked sweet potato 1 medium Butter 1 teaspoon String beans 1 sauce dish Butter 1 teaspoon Corn pone 2 small cakes or Ry Krisps 3 Butter 1 teaspoon Fruit gelatin with cream Banana $\frac{1}{2}$ medium Gelatin $\frac{1}{2}$ tablespoon Sugar 2 teaspoons Cream 2 tablespoons	Creamed chicken Chicken diced $\frac{1}{2}$ cup Cream 1 tablespoon Water, $\frac{1}{2}$ cup Butter 1 teaspoon Candied sweet potato Sweet potato 1 medium Brown sugar 1 teaspoon Butter $\frac{1}{2}$ teaspoon String beans 1 sauce dish Rice muffin 1 Butter $\frac{1}{2}$ teaspoon Fruit mousse Banana $\frac{1}{2}$ medium Gelatin $\frac{1}{2}$ tablespoon Sugar 2 teaspoons Whipped cream 1 table spoon
Night	Soup Cereal allowed Vegetable, cooked or in sauce Bread Butter (molasses) Dessert Fruit or cake Beverage Sugar Cream	Pea soup Peas $\frac{1}{2}$ tablespoons Water 1 cup Cream 1 teaspoon Butter 1 teaspoon Baked brown rice and to mato Rice 1 heaping sauce dish Cream, 2 tablespoons Butter 1 teaspoon Tomato 1 medium Lettuce salad with dressing Lettuce 3 leaves Olive oil, 1 teaspoon Corn pone 2 small cakes Jelly 3 tablespoons Grapefruit cup Grapefruit $\frac{1}{2}$ Cocoa 1 cup Water $\frac{1}{2}$ cup Sugar 1 teaspoon Cream, 3 tablespoons Cocoa 1 teaspoon	Cream of pea soup Peas $\frac{1}{2}$ tablespoons Water 1 cup Cream 2 teaspoons Butter 1 teaspoon Brown rice ring Rice 1 heaping sauce dish Cream 1 teaspoon Butter $\frac{1}{2}$ teaspoon Grilled tomato Butter $\frac{1}{2}$ teaspoon Tomato 1 medium Grapefruit salad Lettuce, 3 leaves Grapefruit sectioned $\frac{1}{2}$ spoon Whipped cream, 1 table- spoon Sugar 1 teaspoon Ry Krisps 3 Butter 1 teaspoon Jelly 1 teaspoon Cocoa 1 cup Water, $\frac{1}{2}$ cup Sugar 1 teaspoon Cream 3 tablespoons Cocoa, 1 teaspoon

ALLERGY
TYPICAL DIET
(CHILD)

Male Age 9 Years Average Body Weight, 30 kgm

Food	Household Measure	Grams	Grams					Milk grams	I U	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Cal cium	Phos-phorus	Iron	Vita-min A	Thia-mine	Ribo-flavin	Nia-cin	Ascor-bic Acid
Milk													
Cheese													
Egg													
Meat fish or poultry	3 oz	80		15	19.5	0.009	0.150	2.1		135	180	7.08	
Cream heavy	1 c	160	5.5	5.5	61.5	0.128	0.101	0.3	3602				
Butter	6 t	30			24	0.004	0.004		810				
Mayonnaise													
Oil	1 t	5			5								
Fruit													
10 per cent—orange	1 m	100	11	1		0.04	0.018	0.4	295	110	50	0.22	54
10 per cent—grapefruit	1 m	100	10	0.5		0.04	0.020	0.3	21	75	60	0.21	40
15 per cent—apple													
20 per cent—banana	1 m	50	12	0.5		0.004	0.014	0.3	175	25	38	0.31	5
Vegetables													
5 per cent—tomato	1 m	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	29
5 per cent—lettuce	3 lbs	80	1	0.5		0.023	0.009		1800		45		5
10 per cent—carrots													
10 per cent—string beans	1 s d	300	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.84	25
Peas dried	4 T		37	15	1	0.046	0.046	2.6	450	315	180	0.60	
Potato white													
Potato sweet	1 m	150	49	3	0.5	0.045	0.078	1.5	890	135	113	1.04	30
Bread whole wheat													
Bread corn pone	6 sm cakes	60	44	5	2	0.010	0.092	0.6	450	270	78	0.60	
Flour wheat													
Crackers													
Ry Krisps													
Wheat													
Cereals													
Oats rolled cooked	1 s d	180	18	5	0	0.016	0.126	1.8		219	88	0.80	
*Macaroni cooked													
Rice brown cooked	1 c	190	23	2.5	0.5	0.020	0.101	0.6		68	24	2.07	
Sugar	5 t	25	25										
Jelly	3 t	20	15										
Desserts													
Cake plain													
Gelatin	1 T	3		2									
Beverages													
Cocoa	2 t	8	2	1	1	0.006	0.036	0.2					
Totals of the Food Constituents			257	60	117.5	0.428	1.060	13.4	14483	1574	1212	14.65	181

Total Calories 2326

Below the normal
Forbidden foods

ALLERGY
TYPICAL DIET
(CHILD)
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit Cereal Cream Sugar Bread Butter Beverage Sugar Cream	Orange, 1 Rolled oats 1 sauce dish Cream 2 tablespoons Sugar 1 teaspoon Corn pone 2 small cakes or Ry Krisps 3 Butter 1 teaspoon Cocoa 1 cup Water $\frac{1}{2}$ cup Sugar, 1 teaspoon Cream 3 tablespoons Cocoa 1 teaspoon	Cornflakes 1 sauce dish Cream 1 tablespoon Sugar, 1 teaspoon Strawberries 10 large Corn pone 2 small cakes Butter 1 teaspoon Cocoa 1 cup Water, $\frac{1}{2}$ cup Sugar 1 teaspoon Cream 3 tablespoons Cocoa 1 teaspoon
Noon	Main dish Meat fish or poultry average serving Potato or cereal Butter Vegetable cooked or in salad Bread Butter Dessert Fruit Gelatin	Pot roast Baked sweet potato 1 medium Butter 1 teaspoon String beans 1 sauce dish Butter 1 teaspoon Corn pone 2 small cakes or Ry Krisps 3 Butter 1 teaspoon 1 fruit gelatin with cream Banana $\frac{1}{2}$ medium Gelatin $\frac{1}{2}$ tablespoon Sugar 2 teaspoons Cream 2 tablespoons	Creamed chicken Chicken diced $\frac{1}{2}$ cup Cream 1 tablespoon Water, 3 tablespoons Butter 1 teaspoon Candied sweet potato Sweet potato 1 medium Brown sugar 1 teaspoon Butter $\frac{1}{2}$ teaspoon String beans 1 sauce dish Rice muffin 1 Butter $\frac{1}{2}$ teaspoon Fruit mousse Banana $\frac{1}{2}$ medium Gelatin $\frac{1}{2}$ tablespoon Sugar 2 teaspoons Whipped cream 1 table spoon
Night	Soup Cereal allowed Vegetable, cooked or in salad Bread Butter (molasses) Dessert Fruit or cake Beverage Sugar Cream	Pea soup Peas 4 tablespoons Water 1 cup Cream 1 teaspoon Butter, 1 teaspoon Baked brown rice and to mato Rice 1 heaping sauce dish Cream 2 tablespoons Butter, 1 teaspoon Tomato 1 medium Lettuce salad with dressing Lettuce 3 leaves Olive oil, 1 teaspoon Corn pone 3 small cakes Jelly 3 tablespoons Grapefruit cup Grapefruit $\frac{1}{2}$ Cocoa 1 cup Water $\frac{1}{2}$ cup Sugar 1 teaspoon Cream, 3 tablespoons Cocoa 1 teaspoon	Cream of pea soup Peas 4 tablespoons Water 1 cup Cream 2 teaspoons Butter 1 teaspoon Brown rice ring Rice 1 heaping sauce dish Cream 1 teaspoon Butter $\frac{1}{2}$ teaspoon Grilled tomato Butter $\frac{1}{2}$ teaspoon Tomato 1 medium Grapefruit salad Lettuce, 3 leaves Grapefruit sectioned $\frac{1}{2}$ Whipped cream 1 table spoon Sugar 1 teaspoon Ry Krisps 3 Butter 1 teaspoon Jelly, 1 teaspoon Cocoa 1 cup Water, $\frac{1}{2}$ cup Sugar 1 teaspoon Cream 3 tablespoons Cocoa, 1 teaspoon

ALLERGY
TYPICAL DIET
(CHILD)

Male Age 9 Years Average Body Weight 30 kgm

Food	Household Measure	Grams	Grams					Milk grams	I U	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk													
Cheese													
Egg													
Meat fish or poultry	3 oz	90		15	19.5	0.009	0.150	2.1		135	180	7.08	
Cream heavy	$\frac{1}{2}$ c	160	5.5	5.5	61.5	0.123	0.101	0.3	360*	48	294		
Butter	6 t	30			4	0.004	0.004		810				
Mayonnaise													
Oil	1 t	5			5								
Fruit													
10 per cent—orange	1 m	100	11	1		0.074	0.018	0.4	225	110	50	0.22	54
10 per cent—grapefruit	$\frac{1}{2}$ m	100	10	0.5		0.071	0.020	0.3	21	75	80	0.21	40
15 per cent—apple													
20 per cent—banana	$\frac{1}{2}$ m	50	12	0.5		0.004	0.014	0.3	173	25	38	0.31	5
Vegetables													
5 per cent—tomato	1 m	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	92
5 per cent—lettuce	3 lbs	30	1	0.5		0.023	0.009		1800	23	45		5
* 10 per cent—carrots													
10 per cent—string beans	1 s d	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.84	25
Peas dried	4 T	80	37	15	1	0.046	0.246	3.6	450	315	180	0.60	
Potato white													
Potato sweet	1 m	150	42	3	0.5	0.045	0.038	1.5	8750	135	113	1.94	80
Bread whole wheat													
Bread corn pone	6 sm cakes	60	44	5	2	0.010	0.022	0.6	450	70	78	0.60	
Flour wheat													
Crackers													
Ry Krisps													
Wheat													
Cereals													
Oats rolled cooked	1 s d	180	18	5	2	0.016	0.126	1.5		219	65	0.40	
Macaroni cooked													
Rice brown cooked	$\frac{1}{2}$ c	190	23	2.5	0.5	0.020	0.101	0.6		68	24	2.07	
Sugar	5 t	25	25										
Jelly	3 t	20	15										
Desserts													
Cake plain													
Gelatin	$\frac{1}{2}$ T	3		2									
Beverages													
Cocoa	2 t	6	2	1	1	0.006	0.036	0.2					
Totals of the Food Constituents			257	60	117.5	0.428	1.060	13.4	14,483	1574	1,112	14.65	181

Total Calories 2326

Below the normal
Forbidden foods

SPASTIC CONSTIPATION
TYPICAL DIET
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit strained or juice Cereal refined or strained Milk Cream Sugar Egg Bread white Butter Beverage No coffee, tea or cocoa, except as flavoring	Orange juice strained, 1 scant cup Rolled oats strained 1 sauce dish Cream 4 tablespoons Sugar 2 teaspoons Egg soft cooked, 1 Toast white 2 slices Butter 3 teaspoons Jelly 3 teaspoons Milk 1 small glass	Orange juice strained 1 scant cup Baby Bialston cooked in milk 1 sauce dish Milk, $\frac{1}{2}$ glass Cream 4 tablespoons Sugar 2 teaspoons Egg poached 1 on Toast Toast white 3 slices Butter 2 teaspoons Jelly, 3 teaspoons Milk, flavored with coffee Milk $\frac{1}{2}$ glass Sugar 1 teaspoon Coffee 1 tablespoon
Noon	Main dish Cereal or potato Egg, mild cheese milk chicken or fish Vegetables strained buttered scalloped soufflé or in milk soup Bread white Butter Dessert Strained fruit plain cake simple pudding or jello Milk	Macaroni and cheese Macaroni $\frac{1}{2}$ cup Cheese grated 4 table spoons Milk $\frac{1}{2}$ cup Flour 1 tablespoon Butter, 2 teaspoons Tomato juice $\frac{1}{2}$ cup scant Bread white 2 slices Butter 2 teaspoons Apple Sauce 1 sauce dish Sugar 2 teaspoons Milk 1 small glass	Creamed chicken in macaroni ring Macaroni $\frac{1}{2}$ cup Chicken diced $\frac{1}{2}$ cup Milk, $\frac{1}{2}$ cup Flour, 1 tablespoon Butter 2 teaspoons Molded tomato Tomato strained 6 table spoons Gelatin $\frac{1}{2}$ tablespoon Bread white 2 slices Butter 2 teaspoons Apple snow Apple 2 tablespoons Egg white $\frac{1}{2}$ Sugar 1 teaspoon Milk $\frac{1}{2}$ cup
Night	Milk soup Chicken or fish Potatoes Vegetables strained buttered scalloped soufflé or in milk soup Bread white Butter Dessert Custard, cereal puddings plain cake jello or strained fruits	Baked haddock Baked potato 1 large Carrots strained String beans strained, Butter for vegetables, 3 teaspoons Bread white 1 slice Butter 3 teaspoons Fruit gelatin with cream Banana ripe, $\frac{1}{2}$ medium Gelatin $\frac{1}{2}$ tablespoon Sugar 2 teaspoons Cream 4 tablespoons Cake plain 1 piece	Carrot soup Carrots strained 6 table spoons Milk $\frac{1}{2}$ cup Butter, 2 teaspoons Planked haddock Buttered potato balls Potato 1 large Butter 1 teaspoon Creamed string beans String beans strained 6 table spoons Butter 1 teaspoon Cream 1 tablespoon Toast points 1 slice white Butter 2 teaspoons Molded banana with cream Banana ripe $\frac{1}{2}$ medium Gelatin $\frac{1}{2}$ tablespoon Sugar 3 teaspoons Cream 3 tablespoons Cup cake 1

SPASTIC CONSTIPATION
TYPICAL DIET
 Average Body Weight, 70 Kgm

Food	Household Measure	Grams	Grams					Mills grams	IU	Micrograms			Milligrams	
			Car bohy drate	Pro-tein	Fat	Cal cium	Phos pho-rus	Iron	Vita-min A	Thia-mine	Ribo-flavin	Nia-cin	Ascor-bic Acid	
Milk	2 c	480	24	16	19	0.366	0.446	1	972	250	1046	0.44	6	
Cheese	2 T	30	1	7	10	0.279	0.210	0.3	430	7	163	0.06		
Egg	One	50		7	5	0.027	0.112	1.5	500	75	125	0.03		
Meat fish or poultry	4 oz	120		20	26	0.012	0.200	2.8		180	240	9.44		
Cream light	1 c	120	6	4	24	0.112	0.096	0.2	1416	40	200			
Butter	12 t	60			48	0.008	0.008		1620					
Mayonnaise														
Fruit														
10 per cent—orange juice	1 sc c	200	28	1		0.043	0.036	0.3	450	990	100	0.44	108	
20 per cent—apple sauce	1 s d	100	26.5	0.5		0.005	0.009	0.3	77	27	30		4	
20 per cent—banana	1 m	100	23	1		0.008	0.073	0.6	350	80	75	0.61	10	
Vegetables strained														
5 per cent—tomato strained	6 T	100	4	1	0.5	0.007	0.071	0.6	1000	75	45	0.53	9	
5 per cent—string beans strained	6 T	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25	
10 per cent—carrot strained	6 T	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	110	1.47	4	
Potato	1 L	200	38	4		0.070	0.114	2.6	80	200	80	2.86	20	
Bread white enriched	5 sl	150	80	12.5	2.5	0.100	0.180	1.8		330	960	1.35		
Flour	1 T	7	5	0.5		0.001	0.007	0.1		26	19	0.06		
Crackers														
Cereals														
Oats rolled cooked	1 s d	180	18	5	2	0.016	0.126	1.5		219	63	0.40		
Macaroni cooked	1 c	150	29	4	0.5	0.006	0.044	0.4		15		0.11		
Sugar	6 t	30	30											
Jelly	3 t	20	15											
Desserts														
Cake plain	1 cu	26	2	4	0.018	0.037	0.3	154	62	69	0.20			
Gelatin	1 T	3		2										
Beverages														
Totals of the Food Constituents			261.5	91	147	1.345	1.724	16.5	13,994	1951	2718	18.22	199	

Total Calories 3083

COITIS
TYPICAL DIET
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Cereal refined or strained Milk Cream Sugar Bread white Butter Beverage no tea, coffee, or cocoa except as flavoring	Cream of wheat 1 sauce dish Milk $\frac{1}{2}$ cup Cream, 4 tablespoons Sugar 1 teaspoon Toast white 2 slices Butter, 3 teaspoons No tea, coffee or cocoa, except as flavoring	Cream of wheat 1 sauce dish, cooked in milk Milk, $\frac{1}{2}$ cup Cream 4 tablespoons Sugar, 1 teaspoon Toast white 2 slices Butter $\frac{1}{2}$ teaspoons No tea, coffee or cocoa except as flavoring
Mid morning	Milk Crackers white Butter	Milk $\frac{1}{2}$ glass Crackers 2 Butter 1 teaspoon	Vanilla junket Milk, $\frac{1}{2}$ cup Vanilla junket powder Crackers $\frac{1}{2}$ Butter 1 teaspoon
Noon	Main dish Cereal or potato Cheese egg or milk Bread white Butter Dessert Custard simple puddings or plain cake	Macaroni and cheese Macaroni $\frac{1}{2}$ cup Cheese grated 4 table spoons Milk $\frac{1}{2}$ cup Flour 1 tablespoon Butter 1 teaspoon Bread white 2 slices Butter 3 teaspoons Custard Egg 1 Sugar 2 teaspoons Milk $\frac{1}{2}$ cup	Macaroni and cheese Macaroni $\frac{1}{2}$ cup Cheese grated 4 table spoons Milk $\frac{1}{2}$ cup Flour 1 tablespoon Butter, 1 teaspoon Toast white 2 slices Butter 2 teaspoons Floating island Egg, 1 Sugar 1 teaspoon Milk $\frac{1}{2}$ cup
Mid after noon	Milk Crackers, white	Cornstarch pudding Cornstarch 1 tablespoon Milk $\frac{1}{2}$ cup Sugar 2 teaspoons Cream 4 tablespoons Crackers $\frac{1}{2}$	Molded cornstarch pudding Cornstarch 1 tablespoon Milk $\frac{1}{2}$ cup Sugar 2 teaspoons Coloring Cream 2 tablespoons Crackers $\frac{1}{2}$
Night	Egg or mild cheese Potato or cereal, refined Bread Butter Dessert Custard simple pudding or plain cake Milk	Egg poached 1 Baked potato 1 large Butter 2 teaspoons Bread white 2 slices Butter $\frac{1}{2}$ teaspoons Cake plain, 1 piece Milk $\frac{1}{2}$ glass	Eggs a la Suisse Egg 1 Cream 2 tablespoons Butter, 1 teaspoon Cheese grated $\frac{1}{2}$ tea spoons on toast Baked stuffed potato Potato 1 large Milk 2 tablespoons Butter 2 teaspoons Melba toast white $\frac{1}{2}$ slices Butter 1 teaspoon Cup cake 1 without frosting Milk $\frac{1}{2}$ glass
Between night meal and bed time	Milk Crackers white	Milk 1 glass Crackers 2	Milk shake Milk 1 glass Sugar 1 teaspoon Vanilla Crackers 2

COLITIS**

TYPICAL DIET

Average Body Weight 70 Kgm

Food	Household Measure	Grams	Grams					Milli grams	I U	Micrograms			Milligrams	
			Car-bohy-drate	Pro-tein	Fat	Cal-cium	Phos-pho-rus	Iron	Vita-min A	Thia-mine	Ribo-flavin	Nia-cin	Ascor-bic Acid	
Milk	4 c	360	48	32	38	1 133	0 592	2	1844	800	2092	0 88	11	
Cheese American	2 T	30	1	7	10	0 279	0 210	0 3	450	7	185	0 06		
Egg	Two	100		14	10	0 054	0 274	3	1000	150	250	0 06		
Meat fish or poultry														
Cream light	½ c	120	5	4	24	0 112	0 095	0 2	1416	40	200			
Butter	4 T	60			48	0 008	0 008		1600					
Mayonnaise														
Fruit														
Vegetables														
Potato	1 L	200	38	4		0 022	0 114	2 6	60	200	80	2 36	11	
Bread white enriched	6 sl	180	66	15	3	0 120	0 180	1 8		396	312	1 6		
Flour	1 T	7	5	0 5		0 001	0 007	0 1		26	16	0 09		
Crackers	6	36	18	3	3	0 006	0 004	0 6						
Cereals														
Cream of wheat cooked	1 s d	175	20 5	3 5	0 5	0 143	0 168	18		150				
Macaroni cooked	½ c	150	27	4	0 5	0 006	0 044	0 4		15		0 11		
Sugar	5 t	25	11											
Jelly														
Desserts														
Cake plain	¾ cu		11	2	4	0 018	0 032	0 3	184	60	80	0 20		
Totals of the Food Constituents			305 5	111	141	1 901	1 999	113	6344	1546	3188	5 38	22	

Total Calories 2947

Below the normal

When process is healing the diet is similar to the ambulatory ulcer diet #2

UNITED
TYPICAL DIET
(AMBULATORY No 1)
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morn ing	Cereal, refined Milk Cream Sugar Bread white Butter	Cream of wheat 1 sauce dish Milk $\frac{1}{2}$ cup Cream, $\frac{1}{2}$ cup Sugar 1 teaspoon Toast white 2 slices Butter 3 teaspoons Orange juice 1 cup strained	Cream of wheat, 1 sauce dish cooked in milk Milk $\frac{1}{2}$ cup Cream $\frac{1}{2}$ cup Sugar 1 teaspoon Toast white 2 slices Butter, 3 teaspoons Orange juice 1 cup strained
Mid morn ing	Milk and cream Crackers Butter	Milk $\frac{1}{2}$ cup Cream 4 tablespoons Crackers 3 Butter 1 teaspoon	Vanilla junket with cream Milk $\frac{1}{2}$ cup Junket powder vanilla Cream, 4 tablespoons Crackers 3 Butter 1 teaspoon
Noon	Main dish Cereal refined Egg mild cheese or milk Bread white Butter Dessert Custard simple pudding or plain cake Milk	Macaroni and cheese Macaroni $\frac{1}{2}$ cup Cheese grated 4 table spoons Milk $\frac{1}{2}$ cup Flour $\frac{1}{2}$ tablespoon Butter, 1 teaspoon Toast white 2 slices Butter 2 teaspoons Baked custard Egg 1 Milk $\frac{1}{2}$ cup Sugar 2 teaspoons Milk $\frac{1}{2}$ cup	Macaroni and cheese Macaroni $\frac{1}{2}$ cup Cheese grated 4 table spoons Milk $\frac{1}{2}$ cup Flour, $\frac{1}{2}$ tablespoon Butter, 1 teaspoon Toast points white 2 slices Butter, 2 teaspoons Floating Island Egg 1 Milk, $\frac{1}{2}$ cup Sugar $\frac{1}{2}$ teaspoon Milk, $\frac{1}{2}$ cup
Mid after noon	Milk and cream Crackers Butter	Milk $\frac{1}{2}$ cup Cream 4 tablespoons Crackers 3 Butter 1 teaspoon	Milk shake Milk $\frac{1}{2}$ cup Cream 4 tablespoons Sugar $\frac{1}{2}$ teaspoon Vanilla Crackers 3 Butter 1 teaspoon
Night	Eggs and mild cheese Cereal refined Bread white Butter Dessert Custard simple pudding or plain cake	Eggs soft cooked 2 Butter 1 teaspoon Potato mashed Potato 1 large Cream 4 tablespoons Butter, 1 teaspoon Toast white 2 slices Butter 2 teaspoons Cake plain 1 piece	Omelet Eggs 2 Butter 1 teaspoon Creamed rice Rice 1 sauce dish Cream $\frac{1}{2}$ tablespoons Butter, 1 teaspoon Toast white 2 slices Butter $\frac{1}{2}$ teaspoons Charlotte Russe Lady fingers Gelatin $\frac{1}{2}$ tablespoon Milk 2 tablespoons Sugar, 1 teaspoon Cream 2 tablespoons Vanilla
Between night meal and bed time	Milk	Milk 1 glass	Milk 1 glass

ULCER
TYPICAL DIET
(AMBULATORY No 1)
Average Body Weight 70 Kgm

Food	Household Measure	Grams	Grams					Milligrams		I U	Micrograms			Milligrams
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A		Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	4 c	960	45	39	38	1 132	0 892	2	1844		500	2092	0 11	12
Cheese	2 T	30	1	7	10	0 279	0 210	0 3	450		7	165	0 06	
Egg	3	150		21	15	0 081	0 336	4 5	1500		295	375	0 09	
Meat fish or poultry														
Cream light	1 c	240	12	8	48	0 224	0 199	0 4	2832		80	400		
Butter	12 t	60			45	0 008	0 008		1620					
Mayonnaise														
Fruit														
10 per cent—orange juice	1 c str	200	26	1		0 048	0 036	0 2	450		220	100	0 11	100
Vegetables														
Potato	1 L	200	38	4		0 072	0 114	2 6	60		200	80	0 36	20
Bread white enriched	6 sl	180	96	15	3	0 120	0 180	1 8			898	312	1 89	
Flour	1 T	7	5	0 5		0 001	0 007	8 1			88	18	0 09	
Crackers uneda	4	24	18	2	2	0 004	0 074	0 4						
Cereals														
Cream of wheat enriched cooked	1 s d	175	20 5	2 5	0 5	0 143	0 168	12			150			
Macaroni cooked	2 c	150	29	4	0 5	0 006	0 044	0 4			15		0 11	
Sugar	3 t	15	15											
Jelly														
Desserts														
Cake plain	1 1/2 cu		19 5	1 5	3	0 014	0 0 4	0 2	116		47	59	0 15	
Beverages														
Totals of the Food Constituents			321	99 5	163	2 082	2 235	25 5	8872		1856	3594	5 80	140

Total Calories 3194

Below the normal

ULCER
TYPICAL DIET
(AMBULATORY No. 1)
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morn ing	Cereal refined Milk Cream Sugar Bread white Butter	Cream of wheat, 1 sauce dish Milk $\frac{1}{2}$ cup Cream $\frac{1}{2}$ cup Sugar 1 teaspoon Toast, white, 2 slices Butter 3 teaspoons Orange juice 1 cup strained	Cream of wheat, 1 sauce dish cooked in milk Milk $\frac{1}{2}$ cup Cream $\frac{1}{2}$ cup Sugar, 1 teaspoon Toast white 2 slices Butter 3 teaspoons Orange juice 1 cup strained
Mid morn ing	Milk and cream Crackers Butter	Milk $\frac{1}{2}$ cup Cream 4 tablespoons Crackers 3 Butter 1 teaspoon	Vanilla junket with cream Milk $\frac{1}{2}$ cup Junket powder vanilla Cream, 4 tablespoons Crackers, 3 Butter 1 teaspoon
Noon	Main dish Cereal refined Egg mild cheese or milk Bread white Butter Dessert Custard simple pudding or plain cake Milk	Macaroni and cheese Macaroni $\frac{1}{2}$ cup Cheese grated 4 table spoons Milk $\frac{1}{2}$ cup Flour $\frac{1}{2}$ tablespoon Butter, 1 teaspoon Toast white 2 slices Butter 2 teaspoons Baked custard Egg 1 Milk $\frac{1}{2}$ cup Sugar 2 teaspoons Milk $\frac{1}{2}$ cup	Macaroni and cheese Macaroni $\frac{1}{2}$ cup Cheese grated 4 table spoons Milk $\frac{1}{2}$ cup Flour $\frac{1}{2}$ tablespoon Butter 1 teaspoon Toast points white 2 slices Butter 2 teaspoons Floating Island Egg 1 Milk $\frac{1}{2}$ cup Sugar, $\frac{1}{2}$ teaspoon Milk $\frac{1}{2}$ cup
Mid after noon	Milk and cream Crackers Butter	Milk $\frac{1}{2}$ cup Cream 4 tablespoons Crackers 3 Butter 1 teaspoon	Milk shake Milk $\frac{1}{2}$ cup Cream 4 tablespoons Sugar $\frac{1}{2}$ teaspoon Vanilla Crackers 3 Butter 1 teaspoon
Night	Eggs and mild cheese Cereal refined Bread white Butter Dessert Custard simple pudding or plain cake	Eggs soft cooked 2 Butter 1 teaspoon Potato mashed Potato 1 large Cream 4 tablespoons Butter, 1 teaspoon Toast white 2 slices Butter 2 teaspoons Cake plain 1 piece	Omelet Eggs 2 Butter 1 teaspoon Creamed rice Rice, 1 sauce dish Cream 2 tablespoons Butter, 1 teaspoon Toast white 2 slices Butter 2 teaspoons Charlotte Russe Lady fingers Gelatin $\frac{1}{2}$ tablespoon Milk 2 tablespoons Sugar 1 teaspoon Cream 2 tablespoons Vanilla
Between night meal and bed time	Milk	Milk 1 glass	Milk, 1 glass

ULCER
TYPICAL DIET
(AMBULATORY No 2)
Average Body Weight, 70 Kgm

Food	Household Measure	Grams	Grams					Mills grams	I.U.	Micrograms		Milligrams	
			Car bohy drate	Pro- tein	Fat	Cal cium	Phos- pho- rus	Iron	Vita min A	Thia mine	Ribo- flavin	Nia cin	Ascor- bic Acid
Milk	4 c	960	48	3*	38	1 132	0 892	2	1844	800	209*	0 88	12
Cheese	2 T	30	1	7	10	0 279	0 210	0 3	450	7	155	0 06	
Egg	One	50		7	5	0 027	0 112	1 5	500	75	125	0 03	
Meat fish or poultry	4 oz	120		20	26	0 012	0 200	2 5		180	240	9 44	
Cream light	1 c	240	12	8	48	0 2*4	0 19*	0 4	283*	80	400		
Butter	12 t	80			43	0 008	0 008		1820				
Mayonnaise													
Fruit													
10 per cent—orange juice	1 c str	200	26	1		0 048	0 038	0 8	450	220	100	0 44	108
15 per cent—applesauce	1 s d	100	25 5	0 5		0 005	0 009	0 3	72	27	30		4
20 per cent—banana	½ m	50	12	0 5		0 004	0 016	0 3	175	25	28	0 31	5
Vegetables													
5 per cent—tomato canned	6 T str	100	4	1	0 5	0 007	0 0*1	0 3	1000	75	45	0 55	2*
10 per cent—carrots canned	6 T str	100	9 5	1	0 5	0 045	0 041	0 6	6000	100	80	1 47	4
10 per cent—squash	6 T str	100	9	1 5	0 5	0 019	0 0*8	0 6	3000	48	81		3
Potato	1 L	90	38	4		0 0*	0 114	2 8	60	200	80	2 38	20
Bread white enriched	5 al	150	80	1* 5	2 5	0 100	0 150	1 5		330	260	1 35	
Flour	1 T	7	5	0 5		0 001	0 007	0 1		25	18	0 09	
Crackers	4	24	18	*	2	0 004	0 0*4	0 4					
Cereals													
Oats rolled cooked	1 s d	180	18	5	2	0 016	0 126	1 5		219	81	0 40	
Macaroni cooked	½ c	150	22	4	0 5	0 006	0 044	0 4		15		0 11	
Sugar	3 t	15	15										
Jelly													
Desserts													
Cake	1½ cu		19 5	1 5	3	0 014	0 0*4	0 2	118	47	52	0 15	
Gelatin	½ T	3		2									
Beverages													
Totals of the Food Constituents			363 5	111	186 5	1 973	2 252	16 6	11 119	2174	3831	17 64	178

Total Calories 3577

ULCER
TYPICAL DIET
(AMBULATORY No 2)
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit strained or juice Cereal refined or strained Milk Cream Butter Egg Bread white Butter Beverage ½ tea coffee or cocoa except as flavoring	Orange juice strained 1 cup Rolled oats strained 1 sauce dish Milk ½ cup Cream 4 tablespoons Sugar 1 teaspoon Egg soft cooked, 1 Toast white 2 slices Butter 2 teaspoons Milk 1 small glass	Orange juice strained 1 cup Baby Bilton strained 1 sauce dish, cooked in milk Milk ½ cup Cream ½ cup Sugar 1 teaspoon Egg poached 1 Toast white 2 slices Butter 2 teaspoons Milk warm flavored with a very small amount of coffee or co- coa ½ cup
Mid-morning	Milk and cream Crackers	Milk ½ cup Cream 3 tablespoons Cracker 1	Vanilla junket with cream Milk ½ cup Vanilla junket powder Cream 3 tablespoons Cracker toasted 1
Noon	Mixed Cereal refined or potato Egg milk cheese milk chicken or fish Vegetables strained scalloped soufflé or in milk soup or but- tered Bread white Butter Dessert Fruit strained, pudding plain cake or gelatin Milk	Macaroni and cheese Macaroni ½ cup Cheese, grated or cream cheese 4 tablespoons Milk ½ cup Flour 1 tablespoon Butter 2 teaspoons Tomato juice ½ cup scant Bread or toast white 2 slices Butter 2 teaspoons Apple sauce ½ cup Sugar 1 teaspoon Milk 1 small glass	Creamed chicken in macaroni ring Macaroni ½ cup Chicken diced ½ cup Milk ½ cup Flour 1 tablespoon Butter 1 teaspoon Molded tomato Sliced tomato 6 tablespoons Gelatin ½ tablespoon Milk toast 2 slices Butter 2 teaspoons Apple Snow Apple strained 2 tablespoons Egg white ½ Sugar ½ teaspoon Milk ½ cup
Mid-afternoon	Milk and cream Crackers	Milk ½ cup Cream 3 tablespoons Cracker 1	Milk shake Milk ½ cup Cream 3 tablespoons Sugar ½ teaspoon Milk toast ½ slice
Night	Soup Chicken or fish small serving Potato baked boiled mashed or creamed Vegetables strained Bread white Butter Dessert Custard, cereal puddings plain cake Jello or strained fruits	Baked haddock Baked potato 1 large Butter 2 teaspoons Carrots strained buttered Squash strained buttered Butter 3 teaspoons Bread or toast white 1 slice Butter 1 teaspoon Fruit gelatin with cream Milk 1 cup ½ medium Gelatin ½ tablespoon Sugar 1 teaspoon Cream 3 tablespoons Cake plain 1 piece	Carrot soup Carrots strained 6 tablespoons Milk ½ cup Butter 1 teaspoon Planked halibut with buttered potato balls Halibut small serving Potato 1 large Butter 4 teaspoons String beans with cream String beans strained 6 table- spoons Cream, 1 tablespoon Toast points ½ slice of bread each Butter 1 teaspoon Molded banana with cream Banana ripe ½ medium Gelatin ½ tablespoon Sugar 1 teaspoon Cream 2 tablespoons Cup cake without frosting 1
Between night meal and bedtime	Milk and cream Crackers	Milk ½ cup Cream 3 tablespoons Crackers 2	Milk toast Milk ½ cup Cream 3 tablespoons Toast white ½ slice

UNDERWEIGHT
TYPICAL DIET
(ADULT)
Average Body Weight, 70 Kgm

Food	Household Measure	Grams	Grams					Milli grams	I U	Micrograms		Milligrams	
			Car boy hydrate	Protein	Fat	Cal culum	Phos-phorus	Iron	Vita-min A	Thia-mine	Ribo-flavin	Nia-cin	Ascorbic Acid
Milk	3 c	720	36	24	28.5	0.849	0.669	1.5	1383	375	1589	0.86	9
Cheese	2 T	30	1	7	10	0.19	0.210	0.3	450	7	165	0.06	
Egg	One	50		7	5	0.077	0.112	1.5	600	75	125	0.03	
Meat fish or poultry	4 oz	120		20	7.6	0.012	0.200	0.8		180	240	9.44	
Cream light	1 c	240	1.9	8	48	0.224	0.192	0.4	283*	80	400		
Butter	15 t	75			60	0.010	0.010		2075				
Mayonnaise	6 t	30	1		72	0.004	0.010	0.2	69	8	20		
Fruit													
10 per cent—orange	1 m	100	11	1		0.094	0.018	0.4	275	110	50	0.29	34
10 per cent—apple	1 m	150	21	1	1	0.011	0.018	0.6	108	60	45	0.75	9
10 per cent—banana	1/2 m	50	12	0.5		0.004	0.014	0.3	175	95	110	0.31	5
Vegetables													
5 per cent—tomato	1 m	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	99
5 per cent—string beans	1 s d	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
5 per cent—lettuce	3 lbs	30	1	0.5		0.023	0.009		1300	93	45		5
10 per cent—carrots	1 s d	100	9.5	1	0.5	0.045	0.041	0.6	6000	160	90	1.47	4
Potato	1 L	200	33	4		0.022	0.114	2.6	60	900	80	2.36	20
Bread white enriched	3 sl	90	43	7.5	1.5	0.060	0.090	0.9		198	156	0.61	
Whole wheat	2 sl	60	30	6	1	0.030	0.090	1.2		19*	108	1.24	
Flour	1 T	7	3	0.5		0.001	0.007	0.1		28	18	0.09	
Crackers whole grain	2	20	13	2	2	0.004	0.040	0.4		20			
Crackers 2 square	9	6	6	1	1	0.009	0.008	0.4					
Cereals													
Oats rolled cooked	1 s d	180	12	5	2	0.016	0.16	1.5		219	65	0.40	
Maccaroni cooked	1/2 c	150	22	4	0.5	0.006	0.044	0.4		15		0.11	
Sugar	9 t	45	45										
Jelly	6 t	40	30										
Deserts Cake	2 cu	26	2	4	0.018	0.032	0.3	154	111	69	0.20		
Frosting	1/2 T	30	30										
Gelatin	1/2 T	7		2									
Beverages													
Bouillon	1 c	240		6									
Totals of the Food Constituents			429	113.5	13.5	1.743	119	18.2	17,472	2125	3433	19.37	153

Total Calories 409*

UNDERWEIGHT

TYPICAL DIET

(ADULT)

Meals for the Day

	Mean Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit Cereal Milk or cream Sugar Egg Bread Butter Jelly Beverage Cream Sugar	Orange 1 medium Rolled oat 1 sauce dish Cream 4 tablespoons Sugar 2 teaspoons Egg 1 Bread 2 slices Butter 4 tea. spoons Jelly 1 heaping tablespoon Coffee Cream 2 tablespoons Sugar 2 teaspoons	Orange juice 1 orange Shredded wheat 1 box unit Strawberries 1 berries Cream 4 table. spoons Sugar 1 teaspoon Egg, soft boiled 1 Muffins 2 Butter 4 teaspoons Marmalade 1 tablespoon Coffee Cream 2 tablespoons Sugar 1 teaspoon
Mid-morning	Milk Crackers	Milk $\frac{1}{2}$ glass Crackers whole wheat 1 Butter 1 teaspoon	Orange junket Milk $\frac{1}{2}$ cup Orange junket powder Crackers whole wheat
Noon	Main dish Cereal or potato Cheese egg or milk Vegetables cooked or in salad Bread Butter Dessert Fruit pudding or cake Milk	Macaroni and cheese Macaroni $\frac{1}{2}$ cup Cheese grated 4 tablespoons Milk $\frac{1}{2}$ cup Butter 1 tablespoon Tomato and lettuce salad Tomato 1 medium Lettuce 3 leaves Mayonnaise 2 tablespoons Bread whole wheat 2 slices Butter 3 teaspoons Baked apple with cream Apple 1 medium Sugar 2 teaspoons Cream 4 tablespoons Milk $\frac{1}{2}$ glass	Creamed chicken and mushrooms in macaroni ring Macaroni $\frac{1}{2}$ cup Milk $\frac{1}{2}$ cup Flour 1 tablespoon Butter 1 teaspoon Chicken diced $\frac{1}{2}$ cup Stuffed tomato salad Tomato 1 medium Lettuce 3 leaves Celery chopped 2 tablespoons French dressing 2 tablespoons Rolls whole wheat 2 slices Butter 3 teaspoons Apple snow with cream Apple 2 tablespoons Sugar 2 teaspoons Egg white $\frac{1}{2}$ Cream 4 tablespoons Milk $\frac{1}{2}$ glass
Mid-afternoon	Milk Crackers	Milk $\frac{1}{2}$ glass Crackers whole wheat 1 Butter 1 teaspoon	Milk shake Cream 4 tablespoons Milk $\frac{1}{2}$ cup Sugar 1 teaspoon Flavoring as desired
Night	Soup Crackers Meat fish or poultry Potato or cereal Vegetables cooked or in salad Bread Butter Dessert Fruit cake pudding pastry or gelatin dessert Beverage	Bouillon Crackers 2 Roast beef Baked potato 1 large Butter 2 teaspoons String beans buttered Carr. to buttered 1 sauce dish Butter 2 teaspoons Bread 1 slice Butter 1 t. spoon Fruit gelatin with cream Banana $\frac{1}{2}$ medium Gelatin $\frac{1}{2}$ tablespoon Sugar 1 teaspoon Cream 4 tablespoons Cake with frosting 1 serving Coffee Cream 2 tablespoons Sugar 2 teaspoons	Consomme Crackers Planked sirloin steak Parsley potato balls Potato 1 large Butter 2 teaspoons Parsley chopped 1 teaspoon Carrot buttered 1 sauce dish Butter 2 t. spoons Hearts of macarons with Roquefort cheese dressing 1 table- spoon Roll 1 Butter 1 teaspoon Milk fruit sherbet, $\frac{1}{2}$ cup Fruit juice 4 tablespoons Sugar 1 teaspoon Milk $\frac{1}{2}$ glass Frosted cup cake 1 Coffee Cream 2 tablespoons Sugar 2 teaspoons
Between night meal and bedtime	Milk	Milk 1 glass	Milk $\frac{1}{2}$ glass

OBESITY
TYPICAL DIET
 Average Body Weight, 70 Kgm

Food	Household Measure	Grams	Grams					Milli-grams	LU	Micrograms			Milligrams	
			Car- bohy- drate	Pro- tein	Fat	Cal- cium	Phos- phorus	Iron	Vita- min A	Thia- mine	Ribo- flavin	Nia- cin	Ascor- bic Acid	
Milk	2 c	480	24	16	19	0 566	0 446	1	92*	250	1046	0 44	8	
Cheese	1 T	18	0 8	3 5	5	0 140	0 105	0 3	2*5	4	81	0 03		
Egg	One	50		7	5	0 027	0 112	1 5	500	75	125	0 03		
Meat fish or poultry	4 oz	120		20	25	0 01	0 200	2 8		180	240	9 11		
Cream														
Butter	3 t	15			1*	0 002	0 002		405					
Mayonnaise														
Fruit														
10 per cent—orange	1 m	100	11	1		0 074	0 018	0 4	2*5	110	50	0 2*	54	
15 per cent—apple	1 am	100	14	0 5	0 5	0 007	0 012	0 4	72	40	86	0 30	6	
20 per cent—banana	1 m	50	12	0 5		0 004	0 014	0 3	175	81	38	0 31	5	
Vegetables														
5 per cent—tomato	1 m	100	4	1	0 5	0 007	0 071	0 6	1000	78	45	0 58	22	
5 per cent—string beans	1 s d	100	7 5	2 5		0 065	0 044	1 4	1000	75	110	0 64	25	
5 per cent—cabbage	1 c	100	5 5	1 5		0 046	0 034	0 4	81	105	100	0 79	10	
5 per cent—lettuce	3 lvs	30	1	0 5		0 023	0 009		1500	88	45		5	
10 per cent—carrots	1 s d	100	9 5	1	0 5	0 045	0 041	0 6	6000	100	90	1 47	4	
Potato	1 am	100	19	2		0 011	0 057	1 3	81	100	40	1 18	10	
Bread white enriched	3 sl	90	48	7 5	1 5	0 050	0 090	0 9		198	156	0 81		
Flour	1 T	2	1				0 001			5	4	0 0*		
Crackers														
Cereals														
Macaroni cooked	1 c	75	11	2		0 003	0 0 2	0 2		8		0 06		
Sugar														
Jelly														
Desserts														
Gelatin	1 T	3		2										
Beverages														
Bouillon	1 c	240		6										
Totals of the Food Constituents			168	74 5	70	1 04	1 2*8	12	1* 109	1374	2*02	11 02	207	

Total Calories 1600

Below the normal

OBESITY
TYPICAL DIET
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit Egg Bread or cereal Butter Beverage Milk No sugar	Orange 1 medium Egg soft cooked, 1 Bread 1 slice Butter, $\frac{1}{2}$ teaspoon Coffee Milk, 2 tablespoons Milk 1 small glass	Orange juice 1 orange Egg poached, 1 Muffin, 1 small Butter, $\frac{1}{2}$ teaspoon Coffee Milk, 2 tablespoons Milk, 1 small glass
Noon	Main dish Vegetables Meat egg or cheese Vegetables cooked or in salad Mineral oil dressing if desired Bread Butter Dessert Fruit Beverage No sugar	Macaroni and cheese very small serving Macaroni $\frac{1}{2}$ cup Cheese grated, 2 table spoons Milk, $\frac{1}{2}$ cup Flour $\frac{1}{2}$ tablespoon Butter $\frac{1}{2}$ teaspoon Tomato and lettuce salad Tomato 1 medium Lettuce 3 leaves Cabbage steamed or raw Bread 1 slice Butter $\frac{1}{2}$ teaspoon Baked apple 1 small Milk 1 small glass Tea or coffee	Celery soup Celery $\frac{1}{2}$ cup Milk $\frac{1}{2}$ cup Broth, $\frac{1}{2}$ cup Creamed chicken and mush rooms in macaroni ring 1 small serving Macaroni, $\frac{1}{2}$ cup Chicken $\frac{1}{2}$ cup diced Mushrooms diced 1 tablespoon Milk, $\frac{1}{2}$ cup Flour, $\frac{1}{2}$ tablespoon Butter, $\frac{1}{2}$ teaspoon Stuffed tomato salad Tomato 1 medium Lettuce, 3 leaves Celery 2 tablespoons Roll 1 small Butter, $\frac{1}{2}$ teaspoon Apple rings Apple, 1 small Milk, 1 small glass Tea or coffee
Night	Clear soup Meat fish or poultry lean Potato or cereal Vegetables cooked or in salad Bread Butter Dessert Fresh fruit Beverage No sugar	Bouillon Roast beef Baked potato 1 small Butter $\frac{1}{2}$ teaspoon Carrots steamed 1 sauce dish String beans 1 sauce dish Butter $\frac{1}{2}$ teaspoon Bread 1 slice Butter $\frac{1}{2}$ teaspoon Fruit gelatin Banana sliced $\frac{1}{2}$ medium Milk 2 tablespoons Gelatin $\frac{1}{2}$ tablespoon Tea or coffee	Consomme Planked sirloin steak Parsley potato balls Potato 1 small Chopped parsley 1 tea spoon Butter $\frac{1}{2}$ teaspoon Carrots glazed, small serving Carrots Butter, $\frac{1}{2}$ teaspoon Hearts of escarole Roll 1 small Butter, $\frac{1}{2}$ teaspoon Baked banana $\frac{1}{2}$ small Lemon juice 1 teaspoon Tea or coffee

DIABETES
TYPICAL DIET
(Normal Fat)

Average Body Weight 70 Kgm

Food	Household Measure	Grams	Grams					Mg/100 grams	LU		Micrograms			Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus		Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid		
Milk	2 c	480	24	16	18	0.586	0.446	1	922	250	1045	0.44	8		
Cheese	2 T	30	1	7	10	0.279	0.210	0.3	450	7	165	0.08			
Egg	One	50		7	5	0.027	0.112	1.5	800	75	125	0.03			
Meat fish or poultry	4 oz	120		20	26	0.012	0.40	2.8		180	240	9.45			
Cream light	½ c	60	2	2	12	0.096	0.048	0.1	708	20	100				
Butter	3 t	15			1*	0.007	0.002		405						
Mayonnaise															
Fruit															
10 per cent—orange	1 m	100	11	1		0.04	0.018	0.4	2.5	110	30	0.2*	54		
15 per cent—apple	½ m	75	10.5	0.5	0.5	0.005	0.009	0.3	54	30	23	0.3	5		
90 per cent—banana	½ m	50	12	0.5		0.004	0.014	0.3	175	25	38	0.31	5		
Vegetables															
5 per cent—tomato	1 m	100	4	1	0.5	0.007	0.071	0.6	1000	75	45	0.38	22		
5 per cent—string beans	1 s d	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25		
5 per cent—lettuce	1 vs	30	1	0.5		0.073	0.009		1500	23	45		5		
10 per cent—carrots	1 s d	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4		
Potato	1 am	100	19	2		0.011	0.057	1.3	30	100	40	1.11	10		
Bread white enriched	2 sl	90	48	7.5	1.5	0.060	0.090	0.9		198	156	0.81			
Flour	½ T	2	1				0.001			8	4	0.02			
Crackers															
Cereals															
Macaroni cooked	½ c	75	11	2		0.003	0.02*	0.2		8		0.06			
Sugar															
Jelly															
Deaserts															
Gelatin	½ T	2		2											
Beverages															
Bouillon	1 c	240		6											
Totals of the Food Constituents			162.5	78.5	87	1.189	1.344	11.7	12,969	128*	2,777	15.64	130		
Total Calories 1747															

Below the normal

DIABETES
TYPICAL DIET
 (Normal Fat)
 Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit Cereal Milk No sugar Egg Bread Butter Beverage No sugar	Orange juice 1 orange Egg soft cooked 1 Toast, 1 slice Butter, $\frac{1}{2}$ teaspoon Coffee Cream, 2 tablespoons	Orange juice, 1 orange Egg dropped 1, on Toast, 1 slice Butter, $\frac{1}{2}$ teaspoon Coffee Cream, 2 tablespoons
Noon	Main dish Cereal or potato Cheese egg or milk Vegetables cooked or in salad Bread Butter Fruit	Macaroni and cheese Macaroni $\frac{1}{2}$ cup Cheese grated 4 table spoons Milk $\frac{1}{2}$ cup Flour $\frac{1}{2}$ tablespoon Butter $\frac{1}{2}$ teaspoon Tomato and lettuce salad Tomato 1 medium Lettuce, 3 leaves Mineral oil dressing Bread, 1 slice Butter $\frac{1}{2}$ teaspoon Baked apple $\frac{1}{2}$ medium Milk $\frac{1}{2}$ cup Milk 1 glass	Creamed chicken and mush rooms in macaroni ring Macaroni $\frac{1}{2}$ cup Chicken diced, $\frac{1}{2}$ cup Mushrooms diced, 2 tablespoons Milk, $\frac{1}{2}$ cup Flour $\frac{1}{2}$ tablespoon Butter, $\frac{1}{2}$ teaspoon Stuffed tomato salad Tomato 1 medium Lettuce 3 leaves Celery 2 tablespoons Mineral oil dressing Rolls, 1 Butter $\frac{1}{2}$ teaspoon Raw apple rings Apple 1 medium Milk $\frac{1}{2}$ glasses
Night	Soup, fat free Crackers Meat fish, or poultry lean Potato Vegetables cooked or in salad Bread Butter Dessert Fruit gelatin with saccharine Beverage No sugar	Bouillon Roast beef Baked potato 1 small Butter $\frac{1}{2}$ teaspoon String beans Carrots steamed Butter for vegetables, $\frac{1}{2}$ teaspoon Bread 1 slice Butter, $\frac{1}{2}$ teaspoon Fruit gelatin Bananas $\frac{1}{2}$ medium Gelatin $\frac{1}{2}$ tablespoon Coffee Cream 2 tablespoons	Consomme Broiled sirloin steak Parsley potato balls Potato, 1 small Parsley chopped 1 tea spoon Butter $\frac{1}{2}$ teaspoon Carrots steamed Hearts of escarole Mineral oil dressing Roll, 1 Butter $\frac{1}{2}$ teaspoon Fruit gelatin Banana $\frac{1}{2}$ medium Gelatin $\frac{1}{2}$ tablespoon Coffee Cream 2 tablespoons

DIABETES
TYPICAL DIET
 (High Normal Fat)
 Average Body Weight, 70 Kgm

Food	Household Measure	Grams	Grams					Mili-grams	I U	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	2 c	480	24	16	19	0.566	0.445	1	9*2	250	1045	0.44	0
Cheese	2 T	30	1	7	10	0.779	0.210	0.3	450	7	165	0.06	
Egg	One	50	7	5	5	0.027	0.112	1.5	500	75	125	0.03	
Meat fish or poultry	4 oz	120	20	26	26	0.012	0.200	2.8		150	240	9.44	
Cream light	½ c	120	6	4	24	0.112	0.096	0.2	1418	40	200		
Butter	6 t	30	24		24	0.004	0.004		810				
Mayonnaise	6 t	30	1		9	0.004	0.010	0.2	60	5	10		
Fruit													
10 per cent—orange	1 m	100	11	1		0.024	0.018	0.4	225	110	10	0.2*	10
15 per cent—apple	½ m	75	10.5	0.5	0.5	0.005	0.009	0.3	54	30	23	0.38	5
Vegetables													
5 per cent—tomato	1 m	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.53	22
5 per cent—string beans	1 s d	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
5 per cent—lettuce	3 lvs	30	1	0.5		0.023	0.009		1500	23	45		5
10 per cent—carrots	1 s d	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
Potato													
Bread white enriched	1 sl	30	16	2.5	0.5	0.020	0.030	0.3		66	52	0.27	
Flour	½ T	2	1				0.001			6	4	0.02	
Crackers													
Cereals													
Macaroni cooked	½ c	75	11	2		0.003	0.022	0.2		8		0.06	
Sugar													
Jelly													
Desserts													
Gelatin	½ T	3		2									
Beverages													
Bouillon	1 c	240		6									
Totals of the Food Constituents			103.5	73	188	1.196	1.273	9.8	13,937	1053	2*15	13.88	1*1

Total Calories 1894

* Below the normal

DIABETES
TYPICAL DIET
(High Normal Fat)
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit Eggs or bacon Bread Butter Beverage Cream No sugar	Orange 1 Egg soft cooked 1 Butter 1 teaspoon Bread or toast $\frac{1}{2}$ slice Butter, 1 teaspoon Coffee Cream 2 tablespoons	Orange juice, 1 orange Egg, poached, 1 Toast $\frac{1}{2}$ slice Butter 1 teaspoon Coffee Cream, 3 tablespoons
Noon	Main dish Egg meat or cheese Cereal or potato Vegetables cooked or in salad Bread Butter Dessert Fruit No sugar Beverage	Macaroni and cheese very small serving Cheese grated 2 table spoons Macaroni $\frac{1}{2}$ cup Milk, $\frac{1}{2}$ cup Flour $\frac{1}{2}$ tablespoon Butter 1 teaspoon Tomato and lettuce salad Tomato 1 Lettuce 3 leaves Mayonnaise 2 table spoons Bread $\frac{1}{2}$ slice $\frac{1}{2}$ " thick Butter 1 teaspoon Baked apple with cream Apple $\frac{1}{2}$ medium Cream 4 tablespoons Milk 1 $\frac{1}{2}$ glasses	Creamed chicken and mush rooms in macaroni ring very small serving Chicken, diced, $\frac{1}{2}$ cup Macaroni, $\frac{1}{2}$ cup Milk $\frac{1}{2}$ cup Flour, $\frac{1}{2}$ tablespoon Butter 1 teaspoon Mushrooms diced, 1 tablespoon Stuffed tomato salad Tomato 1 Lettuce 3 leaves Celery chopped 2 table spoons French dressing 2 table spoons Roll whole grain $\frac{1}{2}$ roll Butter 1 teaspoon Apple whip Apple $\frac{1}{2}$ medium strained Cream, whipped 4 table spoons Saccharine to taste Milk 1 $\frac{1}{2}$ glasses
Night	Soup Meat fish or poultry Vegetables Dessert Fruit or combina tions of fruit and cream, gelatin sweetened with sac charine Beverage No sugar	Bouillon Roast beef String beans buttered Carrots buttered Butter for vegetables, 2 teaspoons Gelatin with cream Gelatin $\frac{1}{2}$ tablespoon Saccharine Cream 2 tablespoons Coffee	Consomme Planked sirloin steak String beans buttered Butter 2 teaspoons Hearts of escarole with Roquefort cheese Gelatin with cream Gelatin $\frac{1}{2}$ tablespoon Saccharine Cream, 2 tablespoons Coffee

DIABETES
TYPICAL DIET
(CHILD)

Male Age 9 Years Average Body Weight 30 Kgm

Food	Household Measure	Grams	Grams					Milligrams	LU	Micrograms			Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid	
Milk	4 c	960	48	32	38	1 13*	0 89*	2	1844	500	09*	0 11	12	
Cheese	1 T	15	0 5	3 5	5	0 140	0 105	2	225	4	53	0 03		
Egg	One	50		7	5	0 027	0 112	1 5	500	75	125	0 03		
Meat fish or poultry	2 oz	60		10	13	0 066	0 100	1 4		90	190	4 72		
Cream														
Butter	3 t	15			12	0 00*	0 002		405					
Mayonnaise	1 t	5			4	0 001	0 002		10	1	3			
Fruit														
10 per cent--orange	2 m	200	22	2		0 048	0 036	0 8	450	2 0	100	0 44	109	
15 per cent--apple	1 m	150	21	1	1	0 011	0 018	0 6	108	60	45	0 75	9	
20 per cent--banana	1 L	150	36	1 5		0 01*	0 042	0 2	575	75	214	0 63	15	
Vegetables														
5 per cent--tomato	1 m	100	4	1	0 5	0 007	0 021	0 6	1000	75	45	0 55	23	
5 per cent--lettuce	3 lbs	30	1	0 5		0 023	0 009		1500	100	45		5	
5 per cent--string beans	1 s d	100	7 5	2 5		0 095	0 044	1 4	1000	75	110	0 64	25	
10 per cent--carrots	1 s d	100	9 5	1	0 5	0 045	0 041	0 6	6000	100	100	1 47	4	
Potato	1 sm	100	19	2		0 011	0 057	1 3	30	100	40	1 18	10	
Bread white enriched	3 sl	45		7 5	1 5	0 060	0 090	0 9		198	158	0 81		
Flour	3 T	4	2 5			0 001	0 004	0 1		13	9	0 05		
Crackers														
Cereals														
Oats rolled cooked	1 s d	180	13	5	2	0 016	0 196	1 5		219	100	0 40		
Macaroni cooked	1 c	75	11	2		0 003	0 0 2	0 2		8		0 05		
Sugar														
Jelly														
Dessert														
Gelatin	1 T	3		2										
Beverages														
Totals of the Food Constituents			248	80 5	8 5	1 610	1 723	11	13 597	1836	3242	12 97	210	

Total Calories 2057

DIABETES
TYPICAL DIET
(CHILD)
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit Cereal Milk Egg Bread Butter Milk	Oranges 2 Rolled oats 1 sauce dish Milk $\frac{1}{2}$ cup Egg soft cooked 1 Toast 1 slice Butter, $\frac{1}{2}$ teaspoon Milk 1 glass	Orange juice 2 oranges Shredded wheat, 1 biscuit Milk, $\frac{1}{2}$ cup Strawberries 10 berries Bacon 2 strips Toast, 1 slice Butter $\frac{1}{2}$ teaspoon Milk 1 glass
Noon	Meat, fish or poultry, small serving Potato or cereal Vegetables Bread Butter Dessert Fruit or gelatin des- sert without sugar	Roast beef Baked potato 1 small Butter $\frac{1}{2}$ teaspoon String beans Carrots buttered Butter $\frac{1}{2}$ teaspoon Bread 1 slice Butter $\frac{1}{2}$ teaspoon Fruit gelatin Bananas 1 large Gelatin $\frac{1}{2}$ tablespoon Milk 1 glass	Planked sirloin steak Parsley potato balls Potato, 1 small Parsley, 1 teaspoon chopped Butter $\frac{1}{2}$ teaspoon String beans Carrots buttered Butter, $\frac{1}{2}$ teaspoon Bread 1 slice Butter $\frac{1}{2}$ teaspoon Baked banana with lemon juice Milk 1 glass
Night	Main dish Cereal or potato Cheese, egg or meat Vegetables cooked or in salad Salad dressing Bread Butter Fruit No sugar Milk	Macaroni and cheese Macaroni $\frac{1}{2}$ cup Cheese grated 2 table- spoons Milk $\frac{1}{2}$ cup Flour $\frac{1}{2}$ tablespoon Butter $\frac{1}{2}$ teaspoon Tomato and lettuce salad Tomato 1 medium Lettuce, 3 leaves Salad dressing 1 teaspoon Bread, 1 slice Butter $\frac{1}{2}$ teaspoon Baked apple Apple 1 medium Milk 1 glass	Creamed chicken and mush- rooms in macaroni ring Macaroni $\frac{1}{2}$ cup Chicken diced $\frac{1}{2}$ cup Mushrooms diced 2 table- spoons Milk, $\frac{1}{2}$ cup Flour $\frac{1}{2}$ tablespoon Butter $\frac{1}{2}$ teaspoon Stuffed tomato salad Tomato 1 small Lettuce 3 leaves Celery 2 tablespoons Salad dressing 1 teaspoon Roll 1 Butter $\frac{1}{2}$ teaspoon Baked apple Apple 1 medium Milk 1 glass

LIVER DISORDER
TYPICAL DIET
(CHRONIC)
Average Body Weight, 70 Kgm

Food	Household Measure	Grams	Grams					Milligrams	I U	Micrograms			Milligrams	
			Carbohydrate	Protein	Fat	Cal cium	Phosphorus			Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	2 c	480	24	10	10	0 568	0 446	1	9 ⁰⁰	250	1045	0 44	6	
Cheese cottage	2 T	30	1	6		0 075	0 079	0 3	50		84			
Egg	One	50		7	5	0 027	0 112	1 5	500	75	125	0 03		
Meat fish or poultry	3 oz lean	740		5 ⁰	7 ⁰	0 032	0 488	2 2		384		17		
Cream														
Butter	t	10			6									
Mayonnaise														
Fruit														
10 per cent—orange	1 m	100	11	1		0 074	0 018	0 4	2 ⁰⁵	110	50	0 2	54	
15 per cent—apple	1 m	150	7 ¹	1	1	0 011	0 018	0 6	108	60	45	0 75	9	
20 per cent—banana	1 m	100	24	1		0 008	0 073	0 6	350	50	78	0 8	10	
Vegetables														
5 per cent—tomato	1 m	100	4	1	0 5	0 007	0 0 1	0 6	1000	75	45	0 68	7 ⁰	
5 per cent—string beans	1 s d	100	7 5	0 5		0 085	0 044	1 4	1000	75	110	0 64	5	
5 per cent—lettuce	3 lbs	30	1	0 5		0 0 3	0 009		1500		45		5	
10 per cent—carrots	1 s d	100	9 5	1	0 5	0 045	0 041	0 6	6000	100	60	1 47	4	
Potato	1 L	200	33	4		0 0 2	0 114	2 6	60	200	80	2 88	20	
Bread white enriched	3 sl	90	48	7 5	1 5	0 060	0 090	0 9		198	155	0 81		
whole wheat	2 l	60	30	6	1	0 030	0 090	1 2		192	108	1 24		
Flour	1 T	7	5	0 5		0 001	0 007	0 1		28	18	0 09		
Crackers	2	8	6	1	1	0 00	0 008	0 2						
Cereals														
Oats rolled cooked	1 s d	180	18	5	2	0 016	0 120	1 5		419	65	0 40		
Macaroni, cooked	2 c	150	22	4	0 5	0 006	0 044	0 4		15		0 11		
Sugar	4 T	80	60											
Jelly	8 T	150	120											
Desserts														
Cake plain	9 cu		26	2	4	0 013	0 032	0 3	154	6 ⁰	69	0 70		
Gelatin	1 T	3		2										
Bouillon	1 c	240		6										
Totals of the Food Constituents			476	127	6 ⁰	0 938	1 815	21 4	11 57 ⁰	2114	2764	27 80	155	

Total Calories 970

Below the normal

LIVER DISORDER*

TYPICAL DIET

(CHRONIC)

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit Cereal Milk Sugar Egg Bread or toast Butter Jelly Milk	Orange 1 medium Rolled oats 1 sauce dish Milk $\frac{1}{2}$ cup Sugar 3 teaspoons Egg soft cooked 1 Toast 2 slices Butter $\frac{1}{2}$ teaspoon Jelly, 2 heaping table spoons Milk whole $\frac{1}{2}$ glass	Orange juice, 1 orange Shredded wheat, 1 biscuit Strawberries, 10 Milk, $\frac{1}{2}$ cup Egg poached 1 Muffins, 3 small Butter $\frac{1}{2}$ teaspoon Marmalade, 1 tablespoon Milk whole 1 glass
Noon	Meat fish or poultry Cereal or potato Vegetables cooked or in salad Bread Butter Jelly or jam Dessert Fruit Milk	Cold meat Macaroni, boiled Macaroni $\frac{1}{2}$ cup Tomato sauce $\frac{1}{2}$ cup Flour 1 tablespoon Cottage cheese salad Lettuce 3 leaves Cottage cheese 2 table spoons Bread 2 slices Butter $\frac{1}{2}$ teaspoon Jelly 2 heaping table spoons Baked apple Apple 1 medium Sugar 1 tablespoon Milk whole 1 glass	Cold sliced chicken Baked macaroni Macaroni, $\frac{1}{2}$ cup Tomato sauce $\frac{1}{2}$ cup Bread crumbs 3 table spoons Cottage cheese salad Lettuce, 3 leaves Cottage cheese 2 table spoons Rolls 2 Butter $\frac{1}{2}$ teaspoon Marmalade 2 heaping tablespoons Stuffed baked apple Apple 1 medium Sugar 2 teaspoons Raisins 2 teaspoons Milk whole, 1 glass
Night	Soup Crackers Meat fish or poultry Potato or cereal Vegetables cooked or in salad Bread Butter Jelly Dessert Fruit cake pudding pastry, or gelatin	Bouillon Crackers 2 Roast beef lean Baked potato 1 large String beans buttered 1 sauce dish Carrots buttered 1 sauce dish Butter for vegetables $\frac{1}{2}$ teaspoon Bread 1 slice Butter $\frac{1}{2}$ teaspoon Jelly 1 heaping table spoon Fruit gelatin Banana 1 medium Gelatin $\frac{1}{2}$ tablespoon Sugar, 3 teaspoons Cake plain 1 piece	Consomme Crackers 2 Planked sirloin steak lean Parsley potato balls Potato 1 large Parsley chopped 1 tea spoon Carrots glazed Carrots 1 sauce dish Sugar 1 teaspoon Butter $\frac{1}{2}$ teaspoon Hearts of escarole Roll 1 Butter $\frac{1}{2}$ teaspoon Jelly 1 heaping table spoon Jellied fruit cup Banana 1 medium Gelatin $\frac{1}{2}$ tablespoon Sugar 2 teaspoons Frosted cup cake 1

* Some of the carbohydrate foods may be used in intermediate feedings instead of at meal time

LIVER DISORDER

TYPICAL DIET

(ACUTE)

Average Body Weight 70 Kgm

Average Body Weight 70 Kg.													
Food	Household Measure	Grams	Grams					Milli-grams	L.U.	Micrograms			Milligrams
			Car- bohy- drate	Pro- tein	Fat	Cal- cium	Phos- phorus	Iron	Vita- min A	Thia- mine	Ribo- flavin	Nia- cin	Ascor- bic Acid
Milk	2 c	430	24	16	11	0.568	0.446	1	9.9	250	1040	11.44	6
Cheese													
Egg	One	50		7	5	0.077	0.110	1.5	500	10	125	0.03	
Meat fish or poultry	4 oz lean	120		26	10	0.016	0.244	3.6		190	276	8.90	
Cream													
Butter	3 t	15			12	0.009	0.009	0.1	405				
Mayonnaise													
Fruit													
10 per cent—orange	1 m	100	11	1		0.094	0.018	0.4	905	110	80	0.22	54
15 per cent—apple	1 m	150	21	1	1	0.011	0.018	0.6	108	111	45	0.75	9
90 per cent—banana	1 m	100	24	1		0.008	0.03	0.6	350	50	76	0.60	10
Vegetables													
5 per cent—tomato	1 m	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.55	22
5 per cent—string beans	1 s d	100	7.5	2.6		0.055	0.044	1.4	1000	15	110	0.64	25
5 per cent—lettuce	3 lbs	30	1	0.5		0.03	0.009		1500	93	45		5
10 per cent—carrots	1 s d	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
Potato	1 L	200	38	4		0.072	0.114	2.6	60	200	80	2.38	11
Bread white enriched	3 sl	90	48	7.5	1.5	0.060	0.090	0.9		198	156	0.81	
whole wheat	2 sl	60	30	6	1	0.030	0.090	1.2		190	108	1.24	
Flour	1 T	7	5	0.5		0.001	0.007	0.1		20	15	0.09	
Crackers	2	8	6	1	1	0.00	0.008	0.2					
Cereals													
Oats rolled cooked	1 s d	180	18	5	2	0.018	0.16	1.5		219	65	0.40	
Macaroni cooked	1 c	150	20	4	0.5	0.006	0.044	0.4		15		0.11	
Sugar	4 T	60	60										
Jelly	8 T	160	100										
Desserts													
Cake plain	2 cu		26	2	4	0.018	0.032	0.3	154	62	110	0.20	
Gelatin	1 T	3		2									
Bouillon	1 c	240		6									
Totals of the Food Constituents			475	95	58	0.949	1.494	17.5	12,224	192	2404	19.11	155

Total Calories 2800

Below the normal

LIVER DISORDER*

TYPICAL DIET

(Adult)

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit Cereal Sugar Milk Bread Butter Jelly Milk	Orange 1 medium Rolled oats 1 sauce dish Milk $\frac{1}{2}$ cup Sugar 3 teaspoons Bread or toast 2 slices Butter $\frac{1}{2}$ teaspoon Jelly, 1 heaping table spoon Milk whole $\frac{1}{2}$ glass	Orange juice, 1 orange Shredded wheat 1 biscuit Strawberries, 10 Milk, $\frac{1}{2}$ cup Muffin 2 medium Butter, $\frac{1}{2}$ teaspoon Jelly, 1 heaping table spoon
Noon	Main dish Cereal Vegetables Vegetables cooked or in salad Bread Butter Jelly Dessert Fruit Milk	Macaroni boiled Macaroni $\frac{1}{2}$ cup Tomato sauce $\frac{1}{2}$ cup Flour 1 tablespoon Lettuce salad with egg Lettuce 3 leaves Egg hard cooked 1 Bread 2 slices Butter 1 teaspoon Jelly 2 heaping table spoons Baked apple Apple 1 medium Sugar 2 tablespoons Milk whole 1 glass	Creamed chicken and mush rooms in macaroni ring Macaroni $\frac{1}{2}$ cup Chicken diced, $\frac{1}{2}$ cup Mushrooms diced, 2 tablespoons Milk $\frac{1}{2}$ cup Flour 1 tablespoon Butter $\frac{1}{2}$ teaspoon Tomato and lettuce salad Tomato, 1 Lettuce 3 leaves Rolls 2 Butter $\frac{1}{2}$ teaspoon Marmalade 2 heaping tablespoons Stuffed baked apple Apple 1 medium Sugar 3 teaspoons Raisins 2 teaspoons Milk whole 1 glass
Night	Soup Crackers Meat fish or poultry Potato or cereal Vegetables cooked or in salad Bread Butter Jelly Dessert Fruit cake	Bouillon Crackers 2 Roast beef lean Baked potato 1 large String beans buttered 1 sauce dish Carrots buttered 1 sauce dish Butter for vegetables 1 teaspoon Bread 1 slice Butter 1 teaspoon Jelly 1 heaping table spoon Fruit gelatin Banana 1 medium Gelatin $\frac{1}{2}$ tablespoon Sugar, 3 teaspoons Cake plain 1 piece	Consomme Crackers 2 Planked sirloin steak lean Parsley potato balls Potato 1 large Parsley, chopped 1 tea spoon Butter $\frac{1}{2}$ teaspoon Carrots glazed Carrots 1 sauce dish Sugar 1 teaspoon Butter $\frac{1}{2}$ teaspoon Hearts of escarole Roll 1 Butter $\frac{1}{2}$ teaspoon Marmalade 1 heaping tablespoon Jellied fruit cup Banana 1 medium Gelatin $\frac{1}{2}$ tablespoon Sugar 3 teaspoons Cup cake 1

* Some of the carbohydrate foods may be used in intermediate feedings instead of at meal time

KETOGENIC DIET**

TYPICAL DIET

(CHILD)

Ratio 3:1 (Protein—2 Grams per Kilogram) Male 6 years Average Weight 18 Kg.

Food	Household Measure	Grams	Grams					Milligrams	LU	Micrograms			Milligrams
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk													
Cheese	1 oz	30	1	7	10	0.279	0.210	0.3	450	7	165	0.06	
Egg	One	50		7	5	0.077	0.112	1.5	800	75	175	0.03	
Meat medium fat	1 oz	30		5	6.5	0.003	0.050	0.7		11	80	2.36	
Cream heavy	1 c	240	8	8	9*	0.192	0.152	0.4	5404	11	336		
Butter	12 t	60			43	0.008	0.008		1670				
Oil	4 t	20			20								
Fruit													
10 per cent—orange	1 m	100	11	1		0.024	0.018	0.4	225	110	10	0.22	54
Vegetables													
5 per cent—tomato fresh	1 m	100	4	1	0.3	0.007	0.021	0.6	1000	75	45	0.58	2*
5 per cent—string beans	1 s d	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
5 per cent—cabbage	1 s d	100	5.5	1.5		0.046	0.034	0.4	55	105	100	0.29	10
5 per cent—lettuce	1/2 head	100	3	1		0.017	0.040	0.5	100	75	45	0.30	15
Potato													
Bread													
Flour													
Crackers													
Cereals													
Oats rolled cooked													
Macaroni cooked													
Sugar													
Jelly													
Desserts													
Cake													
Gelatin													
Beverages													
Totals of the Food Constituents			40	34	18*	0.668	0.669	6.2	10,354	639	1036	4.68	126

Total Calories 1934

* Below the normal
Used in certain types of epilepsy

KETOGENIC DIET

(CHILD)

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit Egg Butter Cream heavy	Orange 1 Egg soft cooked, 1 Butter 1 tablespoon Cream, heavy, 4 table spoons	Orange juice 1 orange Scrambled egg Egg 1 Cream, heavy, 1 table spoon Butter, 1 tablespoon Cream heavy, 3 table- spoons
Noon	Meat, fish or poultry Vegetables, cooked or in salad Butter Oil Cream heavy	Roast beef, very small serv ing String beans buttered Butter, 2 tablespoons Lettuce $\frac{1}{2}$ head with French dressing Oil, 2 teaspoons Cream heavy $\frac{1}{2}$ cup	Chicken salad Chicken, diced, 1 ounce Lettuce, $\frac{1}{2}$ head, chopped Oil, 2 teaspoons String beans buttered Butter, 1 tablespoon Mousse Cream, heavy, $\frac{1}{2}$ cup Vanilla Saccharine
Night	Cheese Vegetables, cooked or in salad Oil Cream heavy	Cheese, 1 ounce Cabbage buttered 1 sauce dish Butter, 1 tablespoon Tomato with French dressing Tomato, 1 Oil 2 teaspoons Cream heavy, 4 table spoons	Cabbage au Gratin Cabbage, 1 sauce dish Cream, 1 tablespoon Butter, 2 tablespoons Cheese grated, 4 table spoons Tomato salad with French dressing Tomato, 1 medium Oil, 2 teaspoons Ivory cream Heavy cream 3 table- spoons Saccharine Agar Vanilla

Note The addition of fish liver and other oils to the diet increas the fat intake

NEPHRITIS
TYPICAL DIET
(LOW PROTEIN)

Average Body Weight 70 Kgm

Food	Household Measure	Grams	Grams					Milligrams	I U	Micrograms			Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Vitamin B	Riboflavin	Niacin	Ascorbic Acid	
Milk	½ c	190	6	4	5	0.141	0.111	0.3	231	68	26	0.11	1	
Cheese														
Egg	One	50		7	3	0.077	0.11*	1.5	500	70	1.5	0.03		
Meat fish or poultry	2 oz	60		10	13	0.006	0.100	1.4		90	120	4.72		
Cream heavy	1 c	240	8	8	9*	0.19*	0.152	0.4	5404	74	338			
Butter	6 t	30			24	0.004	0.004		810					
Mayonnaise	3 t	15	0.5		11	0.002	0.005	0.1	30	4	18			
Other fats														
Fruit														
10 per cent—orange	2 m	200	27	2		0.048	0.036	0.8	450	2.0	100	0.44	108	
15 per cent—apple	1 L	200	28	1	1	0.014	0.024	0.8	144	88	60	1	17	
70 per cent—banana	1 m	100	23	1		0.008	0.028	0.6	350	50	75	0.61	10	
Dried prunes	3 m	30	21.5	0.5		0.018	0.074	0.9	420	60	105			
Vegetables														
5 per cent—tomato	1 m	100	4	1	0.5	0.007	0.071	0.6	1000	75	45	0.39	27	
5 per cent—string beans	1 s d	100	7.8	2.5		0.065	0.044	1.4	1000	75	110	0.64	23	
5 per cent—lettuce	3 lvs	30	1	0.5		0.03	0.009		1500	23	45		8	
10 per cent—carrots	1 s d	100	9.5	1	0.5	0.045	0.041	0.6	5000	100	90	1.47	4	
Potato	1 L	200	38	4		0.07	0.114	2.6	80	200	80	2.36	20	
Bread white enriched	3 sl	90	48	7.5	1.5	0.020	0.090	0.9		198	155	0.81		
Flour	1 T	7	5	0.5		0.001	0.007	0.1		28	18	0.09		
Crackers														
Cereals														
Oats rolled cooked	1 s d	180	18	5	2	0.016	0.176	1.5		219	65	0.60		
Macaroni cooked	½ c	150	27	4	0.5	0.006	0.044	0.4		18		0.11		
Sugar	9 t	45	45											
Jelly	9 t	45	45											
Desserts														
Beverages														
Totals of the Food Constituents			352	89.5	154	0.705	1.092	14.9	17,899	1645	180	13.87	207	

Total Calories 3050

Below the normal

NEPHRITIS
TYPICAL DIET
(LOW PROTEIN)
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	<p>Fruit</p> <p>Cereal Cream heavy Sugar Bread Butter Jelly</p> <p>Beverage Cream Sugar</p>	<p>Orange juice 2 oranges Fruit 3 medium Sugar 1 teaspoon Rolled oats 1 sauce dish Cream heavy, 6 table spoons Sugar 2 teaspoons Bread 1 slice Butter 1 teaspoon Jelly, 2 heaping table spoons Coffee Cream heavy 2 table spoons Sugar 2 teaspoons</p>	<p>Orange juice 2 oranges Apricots cooked 6 halves Sugar, 1 teaspoon Shredded wheat 1 biscuit Cream heavy, 1 table spoons Sugar 2 teaspoons Muffin, 1 Butter 1 teaspoon Jelly 1 heaping table spoon Coffee Cream, heavy, 2 table spoons Sugar 2 teaspoons</p>
Noon	<p>Cereal or potato Cheese egg or meat if none is used in eve- ning meal</p> <p>Vegetables cooked or in salad</p> <p>Bread Butter Fruit</p>	<p>Creamed macaroni Macaroni $\frac{1}{2}$ cup Milk $\frac{1}{2}$ cup Flour 1 tablespoon Butter 1 teaspoon</p> <p>Tomato egg and lettuce salad Tomato 1 medium Lettuce 3 leaves Egg hard cooked 1 Mayonnaise 1 tablespoon Bread 1 slice Butter 1 teaspoon Baked apple with cream Apple 1 large Sugar 3 teaspoons Cream 4 tablespoons</p>	<p>Egg in fluffy potato nest Egg yolk, 1 Egg white beaten 1 Potato, 1 large (com- bined with egg white) Butter 1 teaspoon Stuffed tomato salad Tomato 1 medium Lettuce 3 leaves Celery chopped 2 table spoons Mayonnaise 2 teaspoons Roll 1 Butter 1 teaspoon Apple porcupine with whipped cream Apple 1 large Sugar 3 teaspoons Jelly or marmalade 1 tablespoon Nuts 4 halves almonds Cream 4 tablespoons</p>
Night	<p>Meat fish or poultry 1 very small serving if not used at noon Potato or cereal</p> <p>Vegetables cooked or in salad</p> <p>Bread Butter Fruit</p>	<p>Roast beef</p> <p>Baked potato 1 large Butter 1 teaspoon</p> <p>String beans buttered 1 sauce dish Carrots 1 sauce dish Butter 1 teaspoon</p> <p>Bread 1 slice Butter 1 teaspoon Banana and cream Banana 1 medium Cream, heavy, 4 table spoons Sugar 1 teaspoon</p>	<p>Creamed chicken and mush- rooms in macaroni ring Macaroni $\frac{1}{2}$ cup Milk $\frac{1}{2}$ cup Flour 1 tablespoon Butter 1 teaspoon Chicken diced $\frac{1}{2}$ cup scant Mushrooms diced 2 table spoons Carrots 1 sauce dish Butter 1 teaspoon Hearts of escarole French dressing 1 tea- spoon Roll 1 Butter 1 teaspoon Banana and cream Banana 1 medium Cream heavy 4 table spoons Sugar, 1 teaspoon</p>

NEPHRITIS
TYPICAL DIET
(NEPHROTIC TYPE)
Average Body Weight 70 Kgm

Food	Household Measure	Grams	Grams					Milk grams		I U	Micrograms			Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid		
Milk	2 c	480	34	16	18	0.566	0.486	1	970	250	1046	0.44	6		
Cheese cottage	2 oz	80	2	12		0.050	0.158	0.6	106		168				
Egg	1	50		7	5	0.027	0.112	1.5	800	75	125	0.03			
Meat fish or poultry lean	8 oz	240		52	20	0.032	0.488	7.2		384	552	17.84			
Cream															
Butter	2 t	10			8	0.007	0.007		270						
Mayonnaise															
Fruit															
10 per cent—orange	2 m	200	22	2		0.048	0.036	0.8	450	220	100	0.44	108		
15 per cent—apple	1 L	200	28	1	1	0.014	0.024	0.8	144	80	80	1	18		
20 per cent—banana	1 m	100	23	1		0.008	0.078	0.6	350	30	75	0.61	10		
Dried prunes	3 m	30	21.5	0.5		0.018	0.074	0.9	420	60	105				
Vegetables															
5 per cent—tomato	1 m	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.88	22		
5 per cent—string beans	1 s d	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.84	25		
5 per cent—lettuce	3 lbs	30	1	0.5		0.073	0.009		1800	75	45		5		
10 per cent—carrots	1 s d	100	9.5	1	0.5	0.045	0.041	0.8	6000	100	60	1.47	4		
Potato	1 L	200	38	4		0.072	0.114	2.6	■	200	80	2.36	0		
Bread white enriched	3 sl	90	48	7.5	1.5	0.060	0.090	0.9		198	156	0.81			
Flour	1 T	7	5	0.5		0.001	0.007	0.1		28	18	0.09			
Crackers															
Cereals															
Oats rolled cooked	1 s d	180	18	5	2	0.016	0.176	1.5		219	■	0.40			
Macaroni cooked	½ c	150	22	4	0.5	0.006	0.044	0.4		15		0.11			
Sugar	9 t	45	45												
Jelly	9 t	60	45												
Desserts															
Cake angel	¾ arc		48	5		0.007	0.020	0.2		■	114	0.21			
Gelatin	½ T	3		2											
Beverages															
Totals of the Food Constituents			411.5	124.5	■	1.017	1.834	21.7	12.72*	210*	2854	27.03	212		

Total Calories 2666

Below the normal

NEPHRITIS
TYPICAL DIET
(NEPHROTIC TYPE)
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit Cereal Milk Sugar Eggs Bread Butter Beverage Milk Sugar	Orange, 1 Prunes 3 medium Sugar 1 teaspoon Rolled oats 1 sauce dish Milk $\frac{1}{2}$ cup Sugar 1 teaspoon Egg 1 soft boiled Toast 1 slice Butter 1 teaspoon Coffee Milk 2 tablespoons Sugar 2 teaspoons	Orange juice, 1 orange Apricots cooked 3 halves Sugar 1 teaspoon Shredded wheat, 1 biscuit Milk, $\frac{1}{2}$ cup Sugar, 1 teaspoon Egg 1 poached Muffin 1 Butter $\frac{1}{2}$ teaspoon Coffee Milk, 2 tablespoons Sugar, 2 teaspoons
Noon	Meat, fish or poultry Cereal or potato Vegetables, cooked or in salad Bread Butter Fruit	Cold meat Macaroni and tomatoes Macaroni $\frac{1}{2}$ cup Tomato $\frac{1}{2}$ cup Flour 1 tablespoon Cottage cheese salad Cottage cheese 4 table spoons Jelly 1 tablespoon Lettuce 3 leaves Bread 1 slice Butter $\frac{1}{2}$ teaspoon Baked apple Apple 1 large Sugar 3 teaspoons Jelly 1 heaping tablespoon Milk 1 glass	Cold sliced chicken Macaroni in tomato sauce Macaroni $\frac{1}{2}$ cup Tomato, $\frac{1}{2}$ cup Flour 1 tablespoon Cottage cheese salad Cottage cheese 4 table spoons Jelly 1 tablespoon Lettuce 3 leaves Roll 1 Butter $\frac{1}{2}$ teaspoon Apple surprise Apple 1 large Sugar 3 teaspoons Marmalade, 1 tablespoon Milk, 1 glass
Night	Meat, fish, or poultry Potato or cereal Vegetables cooked or in salad Bread Butter Dessert Fruit gelatin or cake without fat	Roast beef Baked potato 1 large String beans Carrots steamed or raw Bread 1 slice Butter $\frac{1}{2}$ teaspoon Fruit gelatin Orange juice 1 orange Banana 1 medium Sugar 2 teaspoons Gelatin $\frac{1}{2}$ tablespoon Cake angel 1 piece Milk 1 small glass	Planked sirloin steak Parsley potato balls Potato 1 large Butter $\frac{1}{2}$ teaspoon Parsley chopped 1 tea spoon Hearts of escarole Carrots steamed or raw Roll whole grain 1 Butter $\frac{1}{2}$ teaspoon Fruit gelatin Orange juice 1 orange Banana 1 medium Sugar 2 teaspoons Gelatin $\frac{1}{2}$ tablespoon Cake angel 1 piece Milk 1 small glass

PREGNANCY
TYPICAL DIET
 Average Body Weight, 60 Kgm

Food	Household Measure	Grams	Grams					Milli-grams	LU	Micrograms		Milligrams	
			Car- bohy- drate	Pro- tein	Fat	Cal- cium	Phos- phorus	Iron	Vita- min A	Thia- mine	Ribo- flavin	Nia- cin	Ascor- bic Acid
Milk	4 c	960	48	32	38	1.13	0.89*	8	1844	500	209*	0.88	12
Cheese	2 T	30	1	7	10	0.279	0.210	0.3	450	7	185	0.08	
Egg	One	50		7	5	0.027	0.112	1.5	500	75	125	0.03	
Meat fish or poultry	3 oz	90		15	19.5	0.009	0.150	2.1		135	180	7.08	
Cream													
Butter	6 t	30			24	0.004	0.004		310				
Mayonnaise													
Fruit													
10 per cent—orange	1 m	100	11	1		0.024	0.018	0.4	225	110	50	0.2*	54
15 per cent—apple	1 m	150	21	1	1	0.011	0.018	0.6	108	60	45	0.75	9
50 per cent—banana	½ m	50	1*	0.5		0.004	0.014	0.3	175	25	38	0.31	5
Vegetables													
5 per cent—tomato	1 m	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—string beans	1 s d	100	7.5	2.3		0.063	0.044	1.4	1000	75	110	0.64	11
5 per cent—lettuce	3 lbs	30	1	0.5		0.023	0.009		1500	3	40		5
10 per cent—carrots	1 s d	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
Potato	1 L	200	38	4		0.072	0.114	2.6	80	200	80	2.38	70
Bread white enriched	2 sl	60	3*	3	1	0.040	0.060	0.6		132	104	0.64	
whole wheat	2 sl	60	30	5	1	0.030	0.090	1.2		162	108	1.24	
Flour	1 T	7	5	0.5		0.001	0.007	0.1		26	18	0.09	
Crackers													
Cereals													
Oats rolled cooked	1 s d	180	18	5	2	0.016	0.126	1.5		219	88	0.40	
Macaroni cooked	½ c	150	2*	4	0.5	0.006	0.044	0.4		15		0.11	
Sugar	6 t	30	30										
Jelly													
Desserts													
Cake	cu		26	2	4	0.018	0.032	0.3	154	82	60	0.20	
Gelatin	½ T	3		2									
Beverages													
Bouillon	1 c	240		6									
Totals of the Food Constituents			316	103	107	1.763	± 0.06	16.5	± 8*	2031	3429	15.95	156

Total Calories 2639

* Below the normal

PREGNANCY
TYPICAL DIET
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit Cereal Milk Sugar Egg Bread Butter Beverage Milk Sugar	Orange 1 Rolled oats 1 sauce dish Milk $\frac{1}{2}$ cup Sugar 2 teaspoons Egg, soft cooked 1 Toast 2 slices Butter 1 teaspoon Coffee Milk $\frac{1}{2}$ cup Sugar 1 teaspoon	Orange juice 1 orange Shredded wheat 1 biscuit Milk 1 cup Sugar 2 teaspoons Egg 1 poached on Toast 2 slices Butter 1 teaspoon Coffee Milk $\frac{1}{2}$ cup Sugar, 1 teaspoon
Noon	Main dish Cereal or potato Cheese egg or milk Vegetables cooked or in salad Mineral oil dressing Bread Butter Dessert Fruit pudding or cake	Macaroni and cheese Macaroni $\frac{1}{2}$ cup Cheese grated 4 table spoons Milk $\frac{1}{2}$ cup Flour 1 tablespoon Butter 1 teaspoon Tomato salad Tomato 1 medium Lettuce 3 leaves Bread 1 slice Butter 1 teaspoon Paired apple 1 medium Sugar 1 teaspoon Milk $\frac{1}{2}$ cup Milk 1 glass	Creamed chicken and mush rooms in macaroni ring Macaroni $\frac{1}{2}$ cup Chicken diced $\frac{1}{2}$ cup Mushrooms diced 2 table spoons Milk $\frac{1}{2}$ cup Flour 1 tablespoon Butter 1 teaspoon Stuffed tomato salad Tomato 1 medium Lettuce 3 leaves Celery 2 tablespoons Roll 1 Butter 1 teaspoon Apple snow Apple 2 tablespoons Egg white $\frac{1}{2}$ Sugar 1 teaspoon Milk 1 glass
Night	Soup Crackers Meat fish and poultry lean Potato or cereal Vegetables cooked or in salad Bread Butter Dessert Fruit cake pudding pastry or gelatin	Bouillon Roast beef Baked potato 1 large Butter 1 teaspoon String beans buttered Carrots buttered Butter for vegetables 1 teaspoon Bread 1 slice Butter 1 teaspoon Fruit gelatin Banana, $\frac{1}{2}$ medium Gelatin $\frac{1}{2}$ tablespoon Sugar 2 teaspoons Cake 1 piece plain	Consomme Planked sirloin steak Parsley potato balls Potato 1 large Parsley chopped 1 tea spoon Butter 1 teaspoon Carrots buttered Butter 1 teaspoon Hearts of escarole Roquefort cheese dressing 1 tablespoon Roll 1 Butter 1 teaspoon Orange ice 2 heaping table spoons Fruit juice 2 tablespoons Sugar 2 teaspoons Cup cake 1 plain
Between night meal and bed time	Milk, 1 glass	Milk 1 glass	Milk 1 glass

PREGNANCY

TYPICAL DIET

(LOW CALORIC)

Average Body Weight, 60 kgm

Food	Household Measure	Grams	Grams				Milk grams	I U		Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk skim	4 c	960	43	32	4	1 172	0 920	2 3	95	43*	19*	0 83	12
Cheese	2 T	30	1	7	10	0 79	0 210	0 3	450	7	165	0 06	
Egg	One	50		7	5	0 0*	0 112	1 5	300	75	125	0 03	
Meat fish or poultry	3 oz	90		15	19 5	0 002	0 180	2 1		135	180	7 08	
Cream													
Butter	6 t	30			74	0 004	0 004		310				
Mayonnaise													
Fruit													
10 per cent—orange	1 m	100	11	1		0 024	0 018	0 4	2*5	110	50	0 2*	54
15 per cent—apple	1 sm	100	14	0 5	0 5	0 007	0 012	0 4	7*	40	30	0 53	6
90 per cent—bananas	1 m	50	12	0 5		0 004	0 014	0 3	175	25	33	0 31	5
Vegetables													
5 per cent—tomato	1 m	100	4	1	0 5	0 007	0 021	0 6	1000	75	45	0 53	22
5 per cent—string beans	1 s d	100	7 5	2 5		0 063	0 044	1 4	1000	75	110	0 64	25
5 per cent—lettuce	3 lvs	30	1	0 5		0 0 3	0 009		1500	110	45		5
5 per cent—cabbage	5 r T	100	5 5	1 5		0 046	0 034	0 4	55	105	100	0 29	70
10 per cent—carrots	1 s d	100	9 5	1	0 5	0 045	0 041	0 6	6000	100	90	1 47	4
Potato													
Bread white enriched	3 sl	90	42	7 5	1 5	0 060	0 090	0 9		193	135	0 81	
Flour													
Crackers													
Cereals													
Oats rolled cooked	1 s d	180	13	5	2	6 616	0 126	1 5		219	65	0 40	
Sugar													
Jelly													
Desserts													
Gelatin	1 T	3		2									
Beverages													
Bouillon	1 c	240		6									
Totals of the Food Constituents			179 5	90	67 5	1 738	1 805	13 2	11 833	1619	3119	13 27	903

Total Calories 1636

Below the normal

PREGNANCY
TYPICAL DIET
(LOW CALORIC)
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit Cereal Milk, skim No sugar Egg Bread Butter Beverage Milk No sugar	Orange, 1 Rolled oats 1 sauce dish Milk skim $\frac{1}{2}$ cup Egg soft cooked 1 Bread 1 slice Butter 2 teaspoons Coffee Milk skim, 4 tablespoons	Orange juice 1 orange Shredded wheat 1 biscuit Milk, skim, $\frac{1}{2}$ cup Egg poached 1 on Toast 1 slice Butter, 11 teaspoons Coffee Milk, skim, 4 tablespoons
Noon	Cheese egg or milk Vegetables cooked or in salad Mineral oil dressing Bread Butter Fruit No sugar Milk, skim	Cheese, American 1 serving Cabbage buttered Butter 1 teaspoon Tomato and lettuce salad Tomato 1 medium Lettuce 3 leaves Mineral oil dressing Bread 1 slice Butter 1 teaspoon Baked apple Apple 1 small No sugar Milk skim, $1\frac{1}{2}$ glasses	Steamed cabbage with cheese Cabbage 5 rounded table spoons Cheese, grated 4 table spoons Butter, 1 teaspoon Stuffed tomato salad Tomato 1 medium Lettuce 3 leaves Celery chopped, 2 table spoons Mineral oil dressing Roll 1 Butter 1 teaspoon Apple rings Apple 1 small No sugar Milk skim $1\frac{1}{2}$ glasses
Night	Soup Crackers Meat fish or poultry lean Vegetables cooked or in salad Mineral oil dressing Bread Butter Fruit or gelatin desserts No sugar Milk skim	Bouillon Roast beef String beans buttered Carrots, buttered Butter 1 teaspoon Bread 1 slice Butter 1 teaspoon Fruit gelatin Banana $\frac{1}{2}$ medium Gelatin $\frac{1}{2}$ tablespoon Saccharine Milk skim 1 glass	Consomme Planked sirloin steak Hearts of escarole Salad dressing Carrots buttered Butter 1 teaspoon Roll 1 Butter 1 teaspoon Molded fruit gelatin Banana, $\frac{1}{2}$ medium Gelatin $\frac{1}{2}$ tablespoon Saccharine Milk skim 1 glass
Between night meal and bed time	Milk skim	Milk skim 1 glass	Milk skim 1 glass

SUMMARY IN TERMS OF THE KIND AND AMOUNT OF THE NORMAL DIET AND THE VARIATIONS

A tabulation in which the foods of the normal diet are listed down the page. Across the page is recorded the variation in the foods for each disease reviewed in the dietary summary.

Summary

Foods	Normal Adult	Constipation, Spastic	Colitis	Ulcer Ambulatory No 1	Ulcer Ambulatory No 2	Under weight	Obesity	Diabetes, Normal Fat	Diabetes, High Normal Fat
Milk	grams 480	N	+480	+480	+480	+240	N	N	N
Cheese	30	N	N	N	N	N	-15	N	N
Egg	50	N	+50	+100	N	N	N	N	N
Meat fish or poultry	120	Fish or poultry	⊖	⊖	Fish or poultry	N	Lean	N	N
Cream light	120	N	N	+120	+120	+120	⊖	-60	N
Butter	30	+30	+30	+30	+30	+45	-15	-15	N
Mayonnaise	15	⊖	⊖	⊖	⊖	+15	⊖	⊖	+15
Fruit 10%	100	Str +100	⊖	Str +100	Str +100	N	N	N	N
15%	150	⊖	⊖	⊖	Str -30	N	-50	-75	-15
20%	200	Str +150	⊖	⊖	N	N	N	N	⊖
Vegetables 5%	230	Str -30	⊖	⊖	Str -130	N	+100	N	N
10%	100	Str	⊖	⊖	Str +100	N	N	N	N
Potato	90	N	N	⊖	N	N	-100	-100	⊖
Bread	150	White	White +30	White +30	White	N	-60	-60	-120
Flour	7	N	N	N	N	N	-5	-5	-5
Crackers	8	⊖	+23	+16	+16	+90 wh grain	⊖	⊖	⊖
Cereal Oats rolled ck	180	Str	⊖	⊖	Str	N	⊖	⊖	⊖
Macaroni ck	150	N	N	N	N	N	-75	-75	-75
			Cr of Wheat 175	Cr of Wheat 175					
Sugar	45	-15	-20	-30	-30	N	⊖	⊖	⊖
Jelly	30	-70	⊖	⊖	⊖	N	⊖	⊖	⊖
Desserts Cake	1 s	N	N	1 am s	1 am s	Frosted	⊖	⊖	⊖
Gelatin	3	N	⊖	⊖	N	N	N	N	N
Beverages Bouillon	40	⊖	⊖	⊖	⊖	N	N	N	N

Key N = same as normal diet ⊖ = elimination + = increase - = decrease

TS IN GRAMS OF FOOD IN THE TYPICAL FOR ABNORMAL CONDITIONS

t, stated in kinds and amounts are listed
increase or decrease or the elimination of
lines. The variations stand forth clearly

o 1

Liver Disorder Acute	Nephritis Acute	Nephrosis	Preg nancy Normal	Pregnancy Low Caloric	Normal Child	Diabetes Child	Ketogenic Diet Child	Foods	
N	N	-350	N	+450	Skim +450	+450	+450	⊖	Milk
Cottage	⊖	⊖	Cottage +30	N	N	-15	-15	N	Cheese
N	N	N	N	N	N	N	N	N	Egg
Lean +150	Lean	-60	Lean +120	-30	-30	-60	-60	-60	Meat fish or poultry
⊖	⊖	Heavy +150	⊖	⊖	⊖	⊖	⊖	Heavy +120	Cream light
-40	-15	-15	-20	N	N	-15	-15	+30	Butter
⊖	⊖	N	⊖	⊖	⊖	-10	-10	⊖	Mayonnaise
								oil +20	
N	N	+100	+100	N	■	N	+100	N	Fruit 10%
N	N	+50	+50	N	-50	N	N	⊖	15"
+30	+50	+50	+50	N	N	N	+100	⊖	20"
		Prunes 30	Prunes 30						
N	N	N	N	N	+100	N	N	+170	Vegetable 8%
N	N	N	N	N	N	N	N	⊖	10"
N	N	N	N	N	⊖	-100	-100	⊖	Potato
N	N	-60	-60	-30	-60	-60	-60	⊖	Bread
N	N	N	N	N	⊖	M	-3	⊖	Flour
N	N	⊖	⊖	⊖	⊖	⊖	⊖	⊖	Crackers
N	N	N	N	N	N	N	N	⊖	Cereal Oats rolled ek
N	N	N	N	N	⊖	-75	-75	⊖	Macaroni ek
+15	+15	N	N	-15	⊖	-20	⊖	⊖	Sugar
+150	+120	+5	+0	⊖	⊖	-20	⊖	⊖	Jelly
N	N	■	Angel 1 sl	N	⊖	1 am s	⊖	⊖	Desserts Cake
N	N	⊖	N	N	N	N	N	⊖	Gelatin
N	N	⊖	⊖	N	N	⊖	⊖	⊖	Beverages Bouillon

Summary No 3

"A SUMMARY IN TERMS OF THE MENU FOR THE TYPICAL NORMAL DIET AND THE VARIATIONS FOR ABNORMAL CONDITIONS"

This summary lists in the form of menus, the foods in the several diets, demonstrating how very nearly they come to the foods in the normal or family diet. Thus a person, or persons on a therapeutic diet rarely need to have separately prepared meals and this lessens the anxiety and burden of the homemaker. For example, in the breakfast, there is hardly any deviation. For lunch, macaroni, as typical of a cereal product and of racial custom, can be used in all the diets. This is true of such other foods as milk. Reference can be made to the preceding diets for the amounts of foods needed in these menus.

A SUMMARY IN TERMS OF THE MENUS FOR THE TYI

	Normal Adult	Constipation Spastic	Colitis	Ulcer Ambulatory No 1	Ulcer Ambulatory No 2	Under weight	Obesity	Dial Norm
Morning Meal	Orange	Orange juice str		Orange juice str	Orange juice str	Orange	Orange	Orange
	Rolled oats	Rolled oats str	Cream of wheat Milk Cream Sugar	Cream of wheat Milk Cream Sugar	Rolled oats str Milk Cream Sugar	Rolled oats		
	Milk	Cream Sugar				Cream Sugar		
	Sugar							
	Egg	Egg			Egg	Egg	Egg	Egg
	Toast Butter Jelly	Toast white Butter Jelly	Toast white Butter	Toast white Butter	Toast white Butter	Toast Butter Jelly	Toast Butter	Toast Butter
	Coffee Cream sugar	Milk			Milk	Coffee Cream Sugar	Coffee Milk Without sugar	Coffee Cream With sugar
Mid morning			Milk Crackers Butter	Milk Cream Crackers Butter	Milk Cream Crackers	Milk Crackers with wheat Butter		
Noon Meal	Macaroni and cheese	Macaroni and cheese	Macaroni and cheese	Macaroni and cheese	Macaroni and cheese	Macaroni and cheese	Macaroni and cheese	Macaroni and
	Tomato salad Mayon naise	Tomato juice			Tomato juice	Tomato salad Mayon naise	Tomato salad Mineral oil dressing	Tomato salad Mineral dressing
							Cabbage	
	Bread Butter	Bread white Butter	Bread white Butter	Toast white Butter	Bread white Butter	Bread Butter	Bread Butter	Bread
	Baked apple Cream	Apple sauce	Custard	Custard	Apple sauce	Baked apple Cream	Baked apple Without sugar	Baked With sugar Milk
	Milk	Milk		Milk	Milk	Milk	Milk	Milk
Mid after noon			Cornstarch pudding with Cream Crackers	Milk Cream Crackers Butter	Milk Cream Crackers	Milk Wh wheat crackers		
Night Meal	Bouillon Crackers					Bouillon Crackers	Bouillon Without crackers	Bouillon With crackers
	Roast beef	Baked had dock	Egg poached	Egg soft cooked	Baked fish	Roast beef	Roast beef	Roast beef
	Baked potato Butter	Baked potato Butter	Baked potato Butter	Potato mashed	Baked potato Butter	Baked potato Butter	Baked potato	Baked potato Butter
	String beans buttered	String beans str buttered			String beans str buttered	String beans buttered	String beans	String beans buttered
	Carrots buttered	Carrots str buttered			Carrots str buttered	Carrots buttered	Carrots	Carrots buttered
	Bread Butter	Bread white Butter	Bread white Butter	Toast white Butter	Bread white Butter	Bread Butter	Bread Butter	Bread Butter
	Fruit gelatin Cream	Fruit gelatin Cream			Banana gelatin	Fruit gelatin Cream	Fruit gelatin Milk	Fruit gelatin With sugar
	Cake plain	Cake plain	Cake plain	Cake plain	Cake plain	Cake frosted		
	Coffee if desired		Milk			Coffee if desired	Coffee if desired	Coffee if desired
Between night meal and			Milk Crackers	Milk	Milk Cream Cracker	Milk		

AL DIET AND THE VARIATIONS FOR ABNORMAL CONDITIONS**

No 3

Heart Disorder Chronic	Liver Disorder Acute	Nephritis	Nephrosis	Pregnancy Normal	Pregnancy Low Calorie	Normal Child	Diabetes Child	Ketogenic Diet Child
Orange	Orange	Orange juice Prunes	Orange Prunes	Orange	Orange	Orange	Orange	Orange
Roll ed oats Sugar Milk	Roll ed oats Sugar	Roll ed oats Cream heavy sugar	Roll ed oats Milk Sugar	Roll ed oats Milk Sugar	Roll ed oats Milk sk im Without sugar	Roll ed oats Milk Sugar	Roll ed oats Milk	
Egg		(Egg for non meal)	Egg	Egg	Egg	Egg	Egg	Egg
Toast Butter Jelly	Toast Butter Jelly	Toast Butter Jelly	Toast Butter	Toast Butter	Toast Butter	Toast Butter Jelly	Toast Butter	Butter
Milk	Milk	Coffee Cream heavy sugar	Coffee Milk Sugar	Coffee Milk Sugar	Coffee Milk sk im Without sugar	Milk	Milk	Cream heavy
Meat Macaroni and tomato	Macaroni and tomato	Creamed macaroni	Meat Macaroni and tomatoes	Macaroni and cheese	American cheese	Roast beef Baked potato	Roast beef Baked potato Butter	Roast beef
Cottage cheese salad	Lettuce and egg salad	Tomato salad Mayon naise Egg	Cottage cheese salad Jelly	Tomato salad	Tomato lettuce salad Mineral oil dressing	String beans buttered	String beans buttered	Lettuce French dressing or May on naise
					Cabbage buttered	Carrots buttered	Carrots buttered	String beans buttered
Bread Butter and jelly	Bread Jelly Butter	Bread Butter	Bread Butter	Bread Butter	Bread Butter	Bread Butter	Bread Butter	
Baked apple	Baked apple	Baked apple Cream	Baked apple Jelly	Baked apple Sugar Milk	Baked apple Without sugar	Fruit gelatin Cake plain	Fruit gelatin	
Milk	Milk		Milk	Milk	Milk sk im	Milk		Cream
Bouillon Crackers	Bouillon Crackers			Bouillon	Bouillon			
Roast beef lean	Roast beef lean	Roast beef	Roast beef	Roast beef	Roast beef			
Baked potato Butter	Baked potato Butter	Baked potato Butter	Baked potato	Baked potato Butter		Macaroni and cheese	Macaroni and cheese	Cheese Cabbage buttered
String beans buttered	String beans buttered	String beans buttered	String beans	String beans buttered	String beans buttered	Tomato salad Mayon naise	Tomato salad Mayon naise	Tomato salad French dressing
Carrots	Carrots	Carrots buttered	Carrots	Carrots buttered	Carrots buttered			
Bread Butter and jelly	Bread Butter and jelly	Bread Butter	Bread Butter	Bread Butter	Bread Butter	Bread Butter	Bread Butter	
Fruit gelatin	Fruit gelatin	Banana Cream	Fruit gelatin	Fruit gelatin	Fruit gelatin Without sugar	Baked apple	Baked apple	
Cake plain	Cake plain		Angel Cake	Cake plain				
			Milk		Milk sk im	Milk	Milk	
				Milk	Milk sk im			

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